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For questions about this report please contact José Luis Moscovich, Director of Congestion Management at (415) 557-6857, or write to the
San Francisco County Transportation Authority,
100 Van Ness Ave., 25th Floor
San Francisco, CA 94102

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BACKGROUND AND INSTITUTIONAL FRAMEWORK

LEGISLATION

The requirements for a Congestion Management Program were established in 1989 as part of a bi-partisan state legislative package, known as the Katz-Kopp-Baker-Campbell Transportation Blueprint for the Twenty-First Century (AB 471). The actual requirements for CMPs became effective when voters approved Proposition 111 on June 5, 1990.

The state legislation not only provides for increases in transportation funding, but also makes significant changes in the requirements for planning and programming of transportation projects to be funded from these sources of revenue. The goal of the legislation is to tie transportation funding decisions to measurable traffic congestion relief, local land use decisions and their impact on the transportation system, and implementation of transportation control measures to meet air quality goals.

The CMP requirements are the legislature's response to the growing traffic congestion phenomenon experienced by all urbanized areas in California. It is widely perceived that traffic congestion is outpacing the traditional transportation planning process in its ability to provide adequate solutions. In San Francisco, with its high-intensity land uses and extensive transit network, this traffic congestion phenomenon manifests itself differently, posing challenges to the interpretation of the CMP mandate in the city, but for the majority of the state's highly suburbanized metropolitan areas it is a reality.

For most of suburbanized California the inability to keep up with transportation demand lends credibility to the prospect of land development coming to a halt because of increasing traffic congestion and deteriorating accessibility. Consequently, the CMP legislation aims at extracting more productivity out of the existing transportation infrastructure while encouraging more efficient use of scarce new dollars for transportation investment, with the intended result of fending off congestion, improving air quality, and ultimately allowing continued land development where feasible. In order to achieve this, the CMP law mandates a coordinated strategy based on five main concepts:

a. Require more coordination between federal, state, regional and local agencies involved in the planning, programming, and delivery of transportation projects, programs, and services;
b. Favor transportation investments that provide measurable and quick congestion relief;
c. Create a definite link between local land use decisions and their effect on the transportation system
d. Favor transportation solutions that are less dependent on the single-occupant automobile, and improve air quality;
e. Place emphasis on local coordination and responsibility by requiring the designation of a Congestion Management Agency in each urban county in the state.

Mandated Program Components

The CMP legislation establishes the following statutory requirements, to be met by all urban counties in the state:

1. Development and adoption of the initial CMP and biennial updates. The CMP document must contain the following elements:

    - A designated CMP roadway network
    - Traffic level of service (LOS) standards and a methodology for monitoring LOS on the designated CMP roadway network
    - Transit service standards
    - A trip reduction and travel demand element
    - A land use impact analysis methodology
    - A seven-year multi-modal capital improvement program

2. Development of a common database and method for analysis of impacts of local land use decisions on the CMP network.

3. Designation of a Congestion Management Agency for the county.

Changes to Transportation Fund Programming

The CMP legislation included the creation of new funding sources, as well as changes to existing fund programming mechanisms, tied to implementation of CMP requirements. The Authority, at the local level, and the Metropolitan Transportation Commission (MTC) at the regional level have been empowered to make CMP conformance determinations affecting funding eligibility. Annually the Authority must make a finding of conformance with the CMP. The conformance finding affects the City's eligibility for the following funding sources: State Fuel Tax increment and Flexible Congestion Relief (about $25.6 million/year), Traffic System Management program, State Rail Bond Propositions 108 (about $174 million) and 116 (about $35 million) and Federal Surface Transportation Program and Federal Congestion Management and Air Quality program (about $11.4 million/year).

Relationship to Ongoing Planning and Programming Efforts

Congestion management programs are a component of a larger set of ongoing transportation planning and programming efforts at the local and regional levels, including the Regional Transportation Plan (RTP), the Regional Transportation Improvement Program (RTIP), the City's General Plan, and air quality attainment plans.

CONGESTION MANAGEMENT IN SAN FRANCISCO

The main impetus for the CMP legislation derives from worsening *suburban* transportation conditions, caused by land use patterns that perpetuate over-reliance on the private automobile. Although land redevelopment opportunities exist, San Francisco is essentially a built out city, with an extensive transit network and long standing policies and programs to encourage a balanced and truly multi-modal transportation system. It is therefore necessary

to, within the constraints of State law, reinterpret congestion management goals and requirements so that they work for San Francisco.

If we rethink congestion management as maximizing *people* throughput, that is, if we re-interpret congestion management requirements as an opportunity to improve overall mobility in the city, then we have opportunities to capitalize on the city's significant supply of transit services, and on its relatively pedestrian-friendly environment. In this regard, the current CMP legislation's rigid focus on vehicular congestion as the only measure of performance of the transportation system is a major stumbling block. Congestion Management Program activities for the next two fiscal years will include the identification of issues such as this one, which can be pursued as part of the Authority's agenda for legislative change.

The City's Congestion Management Track Record

San Francisco has had considerable success in managing travel demand, especially with respect to control of automobile access to the downtown area during peak commute times. Transportation demand management and land use regulation measures have been in place over the last fifteen years and have allowed major growth in downtown trip-making without significant deterioration in operating conditions (or traffic levels of service) for downtown streets.

This success is the result of the *combined* application of several major policies, in particular:

- parking pricing and supply policies which discourage driving into downtown;
- transit service investment policies to provide and maintain local travel options that are *truly competitive* with the private automobile; and
- land development policies that gave transportation system investments a chance to keep pace with the growth in trip-making.

The city's winning strategy was a truly multi-modal transportation strategy, which allowed each travel market to be served by the transportation modes best suited for it.

Future Strategies

Maintaining travel *options* is an essential strategy not just to prevent a worsening of congestion but also to improve mobility for San Francisco travelers. Enriching the city's inventory of available transportation options will be a key strategy for congestion management in San Francisco.

Maintaining transit service levels is essential to ensure that transit remains a viable option to the private automobile, but there are significant travel markets within the city which are only marginally suited for transit service and cannot be captured by transit without major operating expense. Other trips simply cannot be attracted to transit. Ridesharing (carpooling) strategies and non-traditional transit options (zonal express bus service, demand responsive, etc.) may need to be explored as alternatives to drive-alone in some of these cases.

Whereas the program's primary emphasis on transit reinvestment, with new service proposed in redeveloping areas, is not in question, street and roadway reinvestment will not be

neglected. Particular attention will be paid to projects that improve the operating efficiency of the existing system, such as interconnection of traffic signals to improve vehicular traffic flow, or signal pre-emption to improve the operating speed and reliability of transit vehicles. These projects will be necessary not only to ensure that the current level of congestion does not worsen, but also to improve overall mobility, and help transit re-gain operating speed and retain its market share. Table S-1 lists major CMP milestones through the next fiscal year.

Strategic Analysis Reports

Congestion management activities during the next two fiscal years will include the development of Strategic Analysis Reports (SARs). These will be policy-level thought pieces aimed at facilitating policy-making relative to congestion management by describing systemic congestion, and analyzing likely transportation outcomes taking into account factors such as transportation investment decisions, and transit funding and service policies. SARs will be action-oriented documents to be used, for instance, to systematically identify potential travel markets, such as those described above, matching them with transportation options most likely to effectively serve them, and estimating their potential impact in alleviating congestion levels. SARs could be developed on topics as wide-ranging as the congestion reduction potential of parking supply and pricing policies; alternative ways to measure congestion relief and mobility benefits for city residents, and the potential congestion management implications of implementation of the Americans with Disabilities Act. The number of SARs to be developed over the next two fiscal years will depend on the need for information to support policy-making, and on the level of effort required by the complexity of the topics chosen.

CONGESTION MANAGEMENT AGENCY

The San Francisco County Transportation Authority

The Authority is a special-purpose government agency, created on November 7, 1989, when San Francisco voters approved Proposition B. The Authority is responsible for the administration and strategic prioritization and programming of the local sales tax revenues generated by Proposition B for transportation projects and services. The Authority Board of Directors consists of the eleven members of the San Francisco Board of Supervisors, acting as Commissioners.

On November 6, 1990, the Board of Supervisors designated the Authority as the Congestion Management Agency (CMA) for the County. In its capacity as the CMA for San Francisco, the Authority has primary responsibilities in the following areas:

- Development and adoption of the biennial CMP document and related implementation guidance.
- Monitoring of City agencies' compliance with CMP requirements.
- Programming of various federal and state transportation funds, and
- Policy input into the regional transportation planning and programming process.

In addition, acting as the CMA, the Authority plays a key role in evaluating and providing guidance on major local transportation projects and policies which may affect compliance with congestion management requirements or attainment of CMP standards.

Implications of the Board's Multiple Roles

Policy decisions made by the Board of Supervisors may have negative congestion management impacts and place the Authority Board, as CMA, in a position to find the City in non-conformance with the CMP. A finding of non-conformance has significant implications for funding of transportation programs in the city. This may in turn pose difficult Proposition B funding choices for the Authority Board.

To minimize the potential for conflict, the Authority cannot limit its role to just monitoring CMP conformance after the fact, and must instead take a proactive role to serve as a resource in analyzing the potential congestion management implications of transportation-related actions or policies proposed for the city. Such an approach will allow the Board to better shape policy outcomes by anticipating potential problems as part of its decision-making process at a time when policy options may still be available, instead of having to react when congestion impacts reach crisis proportions and require hasty funding decisions.

According to state law, it is the City's responsibility to ensure that transportation projects, programs, and services are put in place, through its implementing departments, to maintain annual conformance with the CMP. In fulfilling its CMA mandate the Authority must function as an independent agency, to be able to objectively evaluate CMP conformance. This dictates a special relationship with City departments whose transportation-related actions must be assessed annually relative to congestion management impacts. On the other hand, because of the Board's multiple roles, as described above, the Authority's approach is to act as a resource, maximizing coordination with the City's departments responsible for planning and implementation of transportation actions, so that such actions may be evaluated for congestion management impacts before they are put in place. The Authority's Strategic Analysis Reports (SARs) will be a key component of that coordination function, which will involve early identification of potential congestion management problems and opportunities, fostering continued communication with implementing departments, and providing system-level evaluation of proposed actions where appropriate.

Relationship to Regional Planning/Programming Agencies

As the Congestion Management Agency for San Francisco, the Authority plays a key liaison role with MTC and with the Bay Area Air Quality Management District (BAAQMD). The Authority serves as the focal point for local input into MTC's Regional Transportation Plan (RTP), which establishes the overall vision for long-range transportation development and funding in the region, and the Regional Transportation Improvement Program (RTIP). Through its membership in the Bay Area Partnership, the Authority plays a key role in shaping the evolution of planning and programming processes affecting San Francisco's ability to capture transportation investments and preserve its economic vitality.

DESCRIPTION OF PROGRAM ELEMENTS

CMP-DESIGNATED ROADWAY NETWORK

CMP legislation requires that all state highways (including freeways) and principal arterials be included in the CMP network. Designation of facilities as part of this network must strike a balance between the cost of annual monitoring of the network according to mandated methods, and the usefulness of the network to track the transportation impacts of land development decisions, as well as to assess the congestion management implications of proposed transportation actions.

San Francisco's CMP roadway network includes 17 miles of freeways in the city, on Interstate 80, Interstate 280, and US Route 101. A total of 15 miles of state routes designated along city streets are also part of the CMP network, as follows:

- US Route 101 - Richardson Avenue, Lombard Street west of Van Ness Avenue, and Van Ness between Lombard Street and Golden Gate Avenue;
- Route 1 - Park Presidio Boulevard, 19th Avenue , and Junipero Serra Boulevard south of 19th Avenue;
- Route 35 - Sloat Boulevard between 19th Avenue and Skyline Boulevard as well as Skyline Boulevard.

In addition, the CMP network includes 102 miles of city arterials. Figures E-1 and E-2 show the complete CMP-designated roadway network, which comprises 134 miles of roadway facilities. San Francisco's CMP roadway network is consistent with the Metropolitan Transportation System (MTS), as defined by the Metropolitan Transportation Commission's latest revisions to the Regional Transportation Plan.

ROADWAY LEVEL OF SERVICE (LOS) MONITORING

The performance of the CMP roadway network is measured against level of service (LOS) standards. The LOS scale classifies operating characteristics on roadways from A (free flow) to F (bumper-to-bumper). If roadway performance falls below the standard, (i.e., congestion worsens) actions must be taken to restore or improve LOS. Annually the Congestion Management Agency is required to determine the City's conformance with the CMP, including attainment of LOS standards. The San Francisco CMP sets a standard of "E" for LOS on the designated CMP network.

Improvements on the LOS scale ensure better travel conditions for motorists, but the LOS scale does not take into account the *people* throughput potential of a roadway, just the car throughput. San Francisco faces a double challenge on this issue: on the one hand the City must comply with the LOS requirements and prevent LOS conditions from deteriorating below the set standards; on the other hand, it must strive to identify a performance measurement method that reflects San Francisco's transportation realities more appropriately than LOS.

Over the next decade, the performance measurement method will play an increasingly significant role in San Francisco's congestion management efforts as the City undertakes or proceeds with the construction of a number of significant transportation projects, such as the Embarcadero Roadway, the Terminal Separator Structure, and the MUNI Metro Turnback. Mitigation of congestion impacts and analysis of deficiencies will require significant coordination between City departments and the Authority, to ensure continued conformance with CMP requirements.

Annual LOS monitoring on the entire CMP network is performed by the Department on Parking and Traffic (DPT) using Federal planning funds available through the Authority. The methodology used for monitoring LOS on San Francisco's CMP network follows the specifications detailed in the Highway Capacity Manual. All freeways and arterials in the network are monitored using a floating car technique, which allows determination of LOS on the basis of average operating speed. For this purpose the entire CMP network is divided into 89 segments.

The law exempts from monitoring all CMP network segments which were already operating at LOS F at the time of baseline monitoring conducted in connection with the development of the first CMP in 1991.

Development of the 1993 CMP included a comprehensive effort to document the criteria used in 1991 to establish the initial segmentation of the CMP roadway network in San Francisco, including freeway facilities. Five criteria were identified as major determinants of segment limits for the city arterials in the CMP: predominant development pattern (including factors such as number of driveways, institutional users, etc.), changes in speed limits, major cross streets, significant changes in traffic volumes, and occurrence of freeway ramps. Changes were introduced in the segmentation of 18 arterials in the network. By better reflecting local conditions these new segments increase the reliability and explanatory power of LOS measurements on the network.

LOS monitoring for the current conformance determination cycle was performed during July and August 1993. In addition to arterial segments already identified at LOS F during the 1991 monitoring, the 1993 monitoring identified only one arterial segment, on Clay St. (between Kearny and Davis) operating at LOS F during the AM peak. During the PM peak there were no new segments identified at LOS F. In order to corroborate these results, and to determine the contribution of regional trips to this LOS F measurement, the segment on Clay Street will be monitored every four months until April 1994. If the segment is found to be deficient during the April monitoring, the City will be required to prepare and implement a deficiency plan.

In general, the 1993 monitoring showed some improvement in overall traffic conditions over the entire arterial network. There are many possible factors contributing to explain this change, particularly the downturn in the California economy, which has manifested itself in a the decline in the total number of jobs in San Francisco and in the region, as well as a slowing down of commercial activity in the city. Improvements and standardization in the

speed measurement technique introduced during 1993 may also account for some of the differences in LOS measurements from 1991. The freeways show no significant change.

In addition to average speed measurements, during fiscal year 1993-94 the Authority will be exploring with the Department of Parking and Traffic the possibility of systematizing existing measurements of arterial traffic volumes by tube counts (mechanical counters) so that they can provide additional data at regular intervals. Although not acceptable for CMP conformance determination purposes, arterial volume counts can be used to monitor the progress of congestion management actions between annual LOS measurements.

TRANSIT SERVICE STANDARDS

The CMP legislation mandates the establishment of standards for frequency, routing (geographic coverage) and coordination of transit services. The transit standards are intended to work in concert with roadway LOS standards and trip reduction components of the Congestion Management Program, to achieve improvements in congestion conditions and air quality. However, the legislation does not provide a clear link between funding for transit operations and CMP requirements.

In a densely built up urban setting like San Francisco, transit plays a substantive role in enhancing individual mobility, creating opportunities to develop highly integrated congestion management strategies. In addition, the jurisdictional authority of the City over its main local transit provider (MUNI) makes it possible to expect a closer link between transit service policy decisions and congestion management outcomes.

Although the legislative intent is clearly to encourage the use of alternatives to traveling by single-occupant automobile, lack of additional funding for transit operations dictates a cautious approach to determining the degree to which congestion mitigation will be dependent on expansion of traditional fixed-route transit service, particularly in light of the City's current fiscal crisis, which may trigger MUNI service cuts. Other alternatives for improving mobility and addressing congestion are addressed as part of the Trip Reduction Element.

The 1993 CMP establishes transit service standards for all operators serving the city, including MUNI, BART, AC Transit, SamTrans and Golden Gate Transit. Standards differ among operators due to variations in service goals and financial ability, as reflected in each short range transit plan. The standards also vary depending on the time of day and between weekdays and week ends, to reflect the change in demand.

TRIP REDUCTION ELEMENT

The Trip Reduction and Travel Demand Element is a key feature of the CMP legislation. The trip reduction element mandates the establishment of local policy (i.e., trip reduction ordinances) coordinated at the subregional (county) level, explicitly aimed at curbing congestion by promoting major changes in trip-making behavior affecting both the nature of

travel (as in staggered work hours), as well as the choice of travel mode (as in transit and shared rides instead of solo driving).

City Policies

Over the last two decades the City has adopted a variety of policies designed to discourage travel by single-occupant automobile and promote other transportation alternatives. As a result the City was able to accommodate unprecedented growth in travel demand without significantly increasing investment in highway and street capacity expansion. In 1973, the City adopted a policy giving priority to transit vehicles on certain "transit streets". Over the next twenty years this action evolved into a set of strategies and policies known collectively as the City's "Transit First Policy". Transit First is San Francisco's pioneering and comprehensive response to the need for trip reduction and travel demand management. The City's Transit First Policy is documented in three different sources: the Transportation Element of the City's General Plan; the Planning Code; and other City ordinances.

The policies and objectives of the General Plan that focus on transit-oriented solutions to the growth in transportation demand include support for the development of an extensive regional network of rail transit facilities, priority for the improvement of transit services through various means, such as the Transit Preferential Street program, discouragement of long term institutional parking in favor of short-term parking, and support for the provision of safe pedestrian and bicycle facilities.

Existing City ordinances affecting trip reduction include the Planning Code, which regulates the supply and rate structure of the city's parking inventory, and establishes the requirement for Transportation Management Programs and Transportation Brokerage Services for office buildings in the greater downtown area. In addition, the Downtown Transit Impact Development Fee ordinance, enacted in 1981, requires a $5 fee per square foot from all new or converted office spaces in the downtown area. The revenues help to defray the cost of providing transit services to accommodate the trips generated as a direct result of the additional office space over its useful life. In ten years of implementation, the fee has generated approximately $71 million.

Housing and Employment Balance

During the 1980-1989 period about 14,100 new jobs and 12,250 net new residential units were created in the City, for a ratio of about 87 net new housing units built for every 100 new jobs created during this period. This is a significant improvement in the balance between jobs created and housing supply compared to the previous decade, when only about 11 net new housing units were built for each 100 new jobs.

City policy also promotes new housing in conjunction with new developments. Section 313.3 of the Planning Code imposes housing requirements for downtown buildings with more than 25,000 square feet of office space, including a specific percentage to be allocated for low or moderate income housing. Rezoning activities undertaken in the city during the 1980's have also actively promoted new residential development.

Regulation 13, Rule 1 (BAAQMD) - San Francisco's Demonstration of Compliance
Implementation of air quality mandates in the Bay Area is the purview of the Bay Area Air Quality Management District (BAAQMD). Under Rule 1 of the BAAQMD's Regulation 13, adopted in December 1992, Bay Area employers with 100 or more employees at a single work site must develop programs that encourage employees to use alternative modes of transportation, such as transit, carpooling, biking, or walking, to reduce drive-alone commuting. The Rule established average vehicle ridership (AVR) standards for the region based on the relative density of development and level of available transit service in each subregion. For San Francisco, the 1999 AVR goal was set at 2.5 commuters per private vehicle for the Northeast Quadrant, including downtown; and 1.5 for the rest of the city. In an effort to provide some flexibility to cities that have invested in transportation alternatives in the past, the BAAQMD included a provision allowing a jurisdiction to demonstrate that the 1999 AVR goals are currently met for all affected work sites within its geographic area. In 1992 the Authority, in conjunction with the Public Utilities Commission (PUC) funded two citywide travel behavior surveys, one focused on randomly selected work sites, and the other one centered on visitor travel behavior. Both surveys were conducted by the Department of City Planning. The worktrip survey determined that, on average, San Francisco businesses already exceed the BAAQMD's standards for 1999, a finding that clearly reflects the City's commitment to transit investment over many decades. In light of the survey's results the BAAQMD determined that work sites located in San Francisco will not be subject to Rule 1 through 1995, when a new demonstration of compliance will be required.

LAND USE ANALYSIS PROGRAM

The intent of the legislative requirement for a CMP-based land use analysis program is to establish a direct connection between land development decisions and proposed improvements to the regional transportation system. The land use analysis program for San Francisco is focused on strategically assessing the cumulative impacts of land development proposals on the viability of the designated CMP network. This also includes the evaluation of impacts that cross county lines, affecting congestion management efforts by other congestion management agencies in the region. The analysis performed as part of this element informs the transportation investment recommendations in the Capital Improvements Program, and it identifies areas of the transportation network where existing deficiencies are likely to worsen or where new deficiencies are expected to materialize. This program is not intended to replace the exacting local-level analysis process currently in force. Rather, it uses local analysis data as an input into the system-level evaluation of subregional impacts. In the same vein, the program is not intended to add a new layer of complexity to the land development review process in the city; instead, it takes advantage of information already available, for the most part, through the local and regional analysis processes, but it analyzes it from a different perspective.

A central goal of the CMP's land use analysis program is to provide periodic input into the CMP's Capital Improvement Program (CIP). This input is essential to the effectiveness of the CMP because it complements the long-range policy framework established by the General Plan, and allows informed prioritization of transportation investments in the short

and medium term. CMP requirements are not expected to change the City's existing governmental structure for land use decision-making. The institutional roles of the City Planning Commission and Board of Supervisors remain unaffected.

To ensure compliance with state and federal mandates regarding congestion management, the Authority must develop and adopt a methodology for analysis of impacts of land use decisions on the regional transportation network. This method will be a refinement of the current process used by the City, and it should build as far as possible on existing resources and data. It is important to emphasize that this methodology must be developed to satisfy CMP analysis requirements only. It is expected that the City will give due consideration to the results of CMP-generated analyses of transportation impacts; however, as established in state law, the City retains its full jurisdiction over the land development approval process.

During the rest of fiscal year 1993-4 the Authority will work, in coordination with city departments, to develop and adopt the land use analysis methodology and guidelines to be followed for CMP-related analysis, including any needed modifications to the current land use analysis process. The range of possible options for these modifications is closely linked to the decisions regarding development of a travel demand methodology and database to permit forecasting of transportation impacts given different land use assumptions. The new methodology and guidelines for land use impacts analysis will be finalized by December 1994, and adopted by the Authority Board by February 1995. Until then the current local land use analysis process will be used as the interim land use analysis approach for CMP purposes.

CAPITAL IMPROVEMENT PROGRAM (CIP)

The CMP legislation was formulated around a relatively simple concept: future transportation needs would be estimated through the land use analysis program, curbed to some degree through actions in the trip reduction element, and otherwise addressed through a fund programming mechanism to supply new transportation projects and services. That mechanism is the Capital Improvements Program (CIP), which ensures the steady supply of transportation improvements needed to at the same time accommodate land development and prevent congestion from worsening. The legislation defines the CIP as a seven-year program. This makes it into a medium-range programming tool, clearly not intended to replace long-range plans, but rather to provide a vehicle for implementation of improvements consistent with long-range policies. The CIP is intended to address future problems anticipated through land use impacts analysis, rather than to react to problems already observed.

Coordination between the CMP and the updates of various other planning documents such as the Transportation Element of the City General Plan, transit operators Short Range Transit Plans, and the 5-year departmental plans for Proposition B funds, will enhance the effectiveness of the CIP as a strategic programming tool, and contribute to the overall success of the CMP. Coordination is indispensable because inclusion in the CMP's Capital Improvements Program is now the key to State/Federal funding eligibility for transportation

projects. The CIP is therefore the primary vehicle to fund implementation of transportation policies contained in the City's General Plan.

Coordination with the Authority's Strategic Plan, which provides local matching funds for a majority of San Francisco's transportation projects, is one of the key factors in determining which projects are incorporated into the CIP. This ensures that CIP projects will be financially viable, and it reinforces and supports the funding policy choices made as part of the Strategic Plan.

The seven-year period covered by the 1993 San Francisco CMP includes transit and roadway improvements programmed as part of the 1993 and 1995 (Federal) Transportation Improvement Program (TIP) for the Bay Area (MTC, September 23, 1992), including Surface Transportation Program (STP), and Congestion Mitigation and Air Quality Program (CMAQ). No funds were recommended for funding under the 1994 State Transportation Improvement Program (STIP) due to the decision by the California Transportation Commission not to program any funds for the STIP this year.

San Francisco's program is truly multi-modal. Of a total of $27 million included in the 1993 TIP, about $22 million were programmed for transit and pedestrian projects, and about $5 million to roadways. Similarly, of a total of $40 million recommended for programming in the 1995 TIP, $ 33 million is for transit, bicycle, pedestrian, and freight projects, and about $7 million for roadways. It should be noted that the 1991 and 1993 CMPs have programmed about $6.6 million to improve freight access to the port of San Francisco, thus lessening the impacts of truck traffic on the CMP network.

The CIP also includes $577,000 for projects funded under the AB 434 (Vehicle Registration Fee) program. These funds are devoted to projects that improve air quality. The 1993 list includes a significant commitment to projects involving use of alternative fuels.

DEFICIENCY PLANS

The provision for deficiency plans is intended to work in conjunction with the requirement for annual monitoring of levels of service (LOS) on the designated CMP roadway network. In order to make its annual finding of conformance with the CMP, the Congestion Management Agency (CMA) must first ascertain that the LOS standard is not being violated. If, however, the results of monitoring on a CMP roadway segment show that LOS has fallen below the established standard, the CMA can still make a finding of conformance with the CMP if the local jurisdiction designates the roadway segment as deficient and develops a deficiency plan for it.

In order to make deficiency plans effective for San Francisco, they should be

- **effective:** linked to some evaluation method or periodic monitoring of their efficacy, and designed to address congestion at a scale commensurate with the magnitude of the problem; and

- **infrequent:** used only to address contingencies, i.e., truly unforeseen events, rather than to replace medium or long-range planning, or to circumvent CMP programming that occurs through the Capital Improvements Program.

There is a close connection between projects proposed as part of the CMP's Capital Improvements Program and actions included in deficiency plans. Because deficiency plan actions must be taken from the list developed by the Air Quality Management District, which de-emphasizes roadway-based solutions, deficiency plans are likely to include mostly transit or travel demand management (TDM) types of measures.

San Francisco's congestion management program is designed to be forward-looking and systematic in its treatment of current and anticipated congestion problems on the CMP network. This can be achieved, as intended in the legislation, through effective coordination of land use impacts analysis activities with decisions regarding prioritization of improvements proposed as part of the Capital Improvements Program. In addition, the Authority's Strategic Analysis Report (SARs) will be used as a vehicle for identifying anticipated deficiencies. Actions (particularly transit and other operational improvements) identified as part of deficiency plans will be consistent with the general funding policy direction in the Capital Improvements Program.

Deficiency Plan guidelines will be developed and adopted by the Authority by March 1995, with input from City Departments. The guidelines will provide detailed direction about the required contents of deficiency plan documents, as well as establish timelines for submittal and approval, and standards for evaluation of the mitigation measures proposed. Preparation of the deficiency plan reports will be the responsibility of the City through its departments.

Development of deficiency plan procedures will emphasize maximum utilization of current mechanisms for assessment of development impact mitigation measures. The Authority will work with the Department of City Planning on this topic. However, there are differences between the mitigation assessment process associated with development proposals and the deficiency plan process. Pursuant to state law, deficiencies on the CMP network must be addressed by the City, regardless of whether they can be linked to a specific development or not. The Authority will therefore seek input from implementing Departments, particularly MUNI, the Department of Parking and Traffic, and the Department of Public Works, to ensure that the guidelines result in a process that leads to expeditious implementation of deficiency plan actions.

TRAVEL DEMAND METHODOLOGY AND UNIFORM DATABASE

A methodology and guidelines for travel demand forecasting will be developed by the Authority during fiscal year 1993-4. The process for methodology development will include an evaluation of current software options available for computerized travel demand modeling. This evaluation will be part of a larger exploration of feasible methods to obtain travel demand forecasts to suit San Francisco's CMP process and other related data needs. The potential uses and limitations of continuing to rely on MTC's regional model will also be considered, as an option to developing an entirely new model for San Francisco.

Complex computerized travel demand models can only be built at great expense, and require major commitment of resources to maintain and update them. Computerized models have traditionally not performed reliably enough when it comes to predicting ridership on alternative transportation modes, particularly bus transit or pedestrian trips, but this is also true for automobile-based trips such as carpools and vanpools, which tend to exhibit characteristics different from single-occupant automobile trips. The level of investment in a computerized model must be weighed against its ability to deliver, with more than marginal reliability, the types of data that would be meaningful for the strategic analysis purposes of the San Francisco CMP.

Another significant consideration is the accuracy of the database used in the travel demand forecasting process. The explanatory power of a computerized model will only be a reflection of the quality of the underlying database. A sketchy database will ensure unreliable results, particularly if it is not kept up to date. Database upkeep can be a major associated expense, but costs can be mitigated by building reporting requirements into existing development impact guidelines and other land use and demographic analysis procedures. In developing a database for analysis of impacts, the Authority will maximize utilization of already existing information, and will emphasize coordination with City departments so that data collection efforts undertaken for special purposes, such as the 1995 travel behavior survey to demonstrate air quality compliance, are designed to provide information useful to the travel demand forecasting process, as well.

The methodology and guidelines for travel demand forecasting will be finalized by June 1994, and adopted by the Authority Board in August 1994. In the meantime, the current transportation impacts analysis methods will be used as the interim approach for CMP purposes, complemented by special analyses, as appropriate.

ENVIRONMENTAL DOCUMENTATION

In compliance with State and Federal requirements, the Authority through an initial evaluation, determined that the 1993 CMP could not have a significant impact on the environment. A Preliminary Negative Declaration was prepared, duly noticed, and circulated widely for comment to all affected State and local agencies and interested parties. On October 13, 1993 the Authority held a public hearing on the Draft 1993 CMP and its Preliminary Negative Declaration. The public comment period remained open until October 20. No comments were received on the Preliminary Negative Declaration. The final Negative Declaration was certified by the Authority Board after the close of the public hearing at its meeting on November 22, 1993.

Table S-1

San Francisco Congestion Management Program

Key CMA Milestones for Fiscal Years 1993-4 and 1994-5

Timeline	CMA Milestone
December 93	Annual Conformance Finding by the Authority Board
April 94	Verification of LOS F Segments and Deficiency Plan Notification to the City
May 94	Travel Demand Analysis: Methodology Phase 1
May 94	LOS Monitoring: Recommended Approach to the Use of Existing Data
June 94	Proposed Changes to the CMP Network
July 94	Uniform Database: Recommended Approach
July 94	Proposed CMP Network Segmentation Changes
July 94	Deficiency Plans Due
August 94	Deficiency Plans: Comments to City Departments on Plans Submitted in July 94
September 94	Travel Demand Analysis: Draft Methodology and Guidelines
September 94	Deficiency Plans Approved by the Authority Board
October 94	Annual CMP Conformance Finding by the Authority Board
After September 94	Deficiency Plans: Monitoring of Implementation
Ongoing	Trip Reduction Element: Coordinate data collection efforts w/ City Departments
November 94	Land Use Analysis: Draft Guidelines
December 94	Deficiency Plans: Draft Guidelines
January 95	Travel Demand Analysis: Final Methodology and Guidelines
February 95	Land Use Analysis: Final Guidelines
March 95	Deficiency Plans: Final Guidelines
March 95	Initiate ISTEA Programming
March/April 95	LOS Monitoring
April 95	Transit Standards: Conformance Verification Procedure
June 95	Draft Prioritized ISTEA Programming List
July 95	Final ISTEA List Adopted
Aug/Sept. 95	LOS Monitoring
October 95	Annual Conformance Finding by the Authority Board

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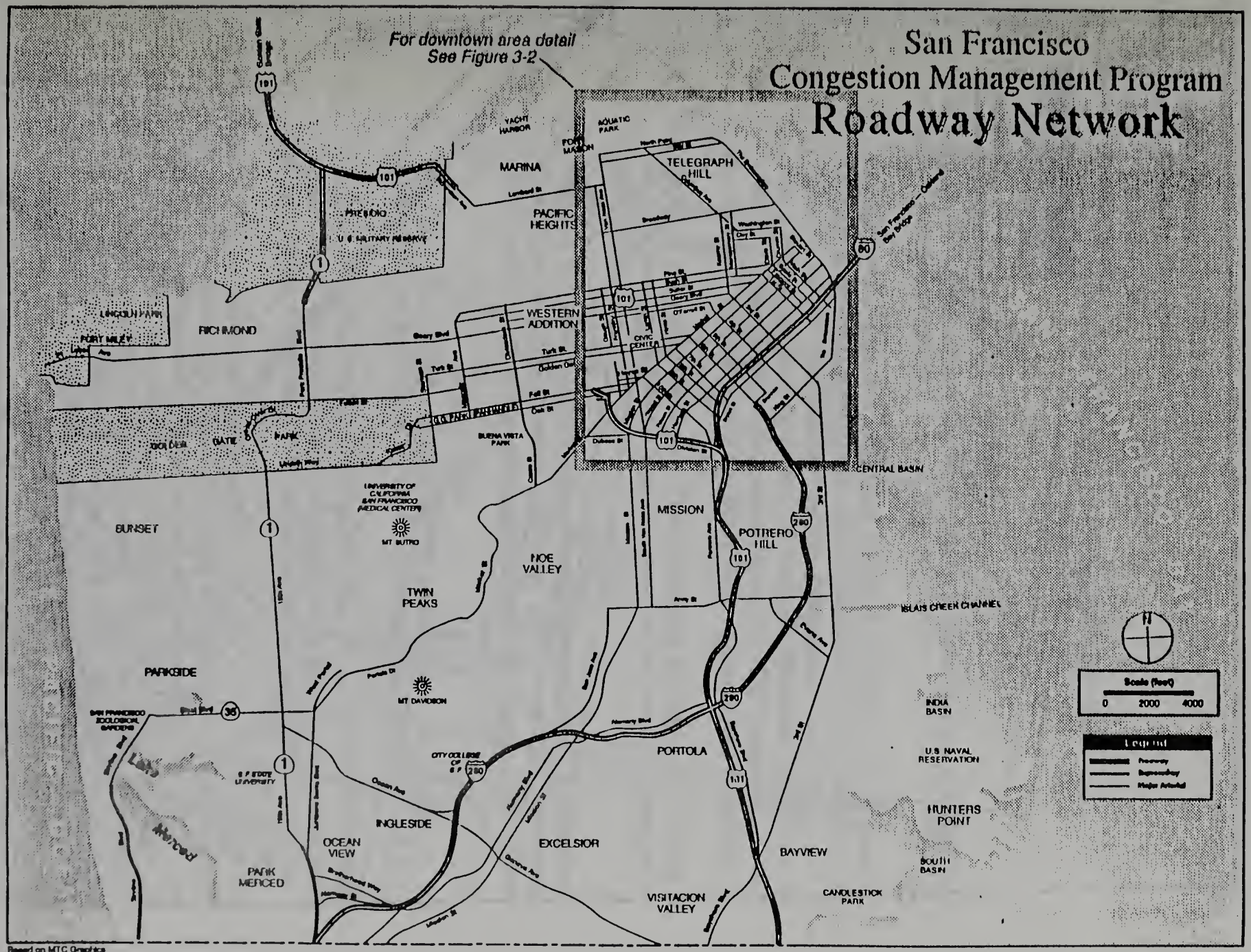
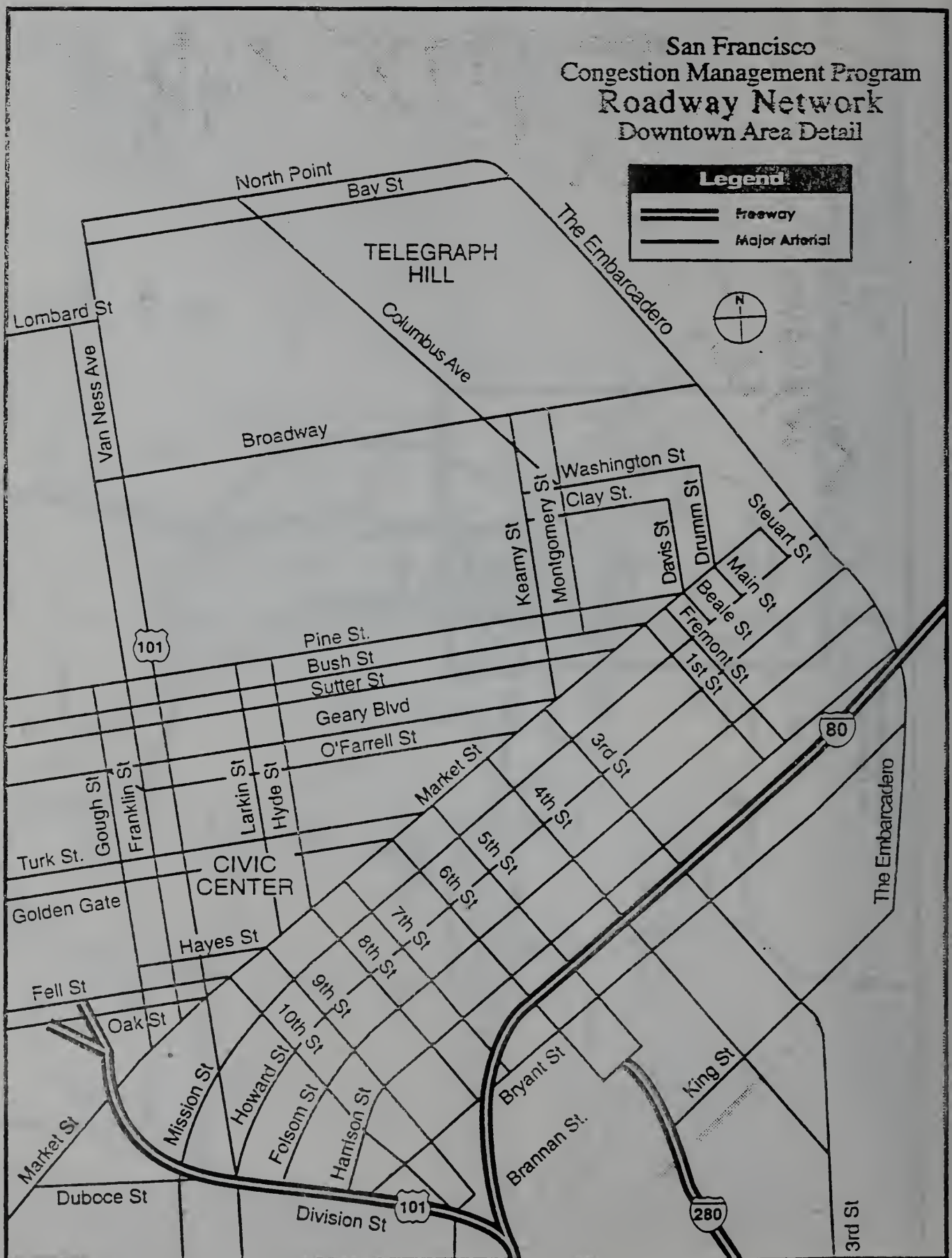
Figure E-1



Based on MTC Graphics

Figure E-2



Based on MTC Graphics

Not to scale

CHAPTER 1

BACKGROUND AND PROGRAM OVERVIEW

BACKGROUND

Purpose of the Document

The 1993 San Francisco Congestion Management Program document is designed to serve the following purposes:

i. Comply with state law requiring biennial adoption of a Congestion Management Program (CMP) and submittal to the Metropolitan Transportation Commission for a finding of conformance. A conformance finding ensures the City's continued eligibility for additional state fuel tax revenues authorized by CMP legislation, as well as state and federal funding eligibility for key transportation projects.

ii. Serve as the main and most current reference and guidance document for San Francisco agencies involved in activities related to congestion management.

iii. Serve as the basis for the congestion management work program and schedule to be followed during fiscal years 1993-4 and 1994-5 to develop specific technical or policy guidance in areas of the Program that require it.

iv. Establish and describe interim policies, procedures, or methods to be used until final guidance is available as described in iii) above.

v. Serve as the main description of the 1993 San Francisco CMP, to be used as the basis for determining the appropriate level of environmental evaluation and developing the environmental document for the Program.

Document Organization and Approach

The document in organized in chapters following MTC guidance of December 26, 1990, with a separate chapter devoted to each of the elements required by the CMP legislation. For the complete text of MTC's guidance please refer to Appendix I. The text of the 1991 San Francisco CMP was used as a general guide, and was retained where still current. The order of some chapters in the document was changed to allow for better flow of text. New sections added include an Executive Summary and chapters about the Congestion Management

Agency, Deficiency Plans, Compliance Monitoring, and Policy and Implementation Issues.

For each chapter where technical issues require further development there is an introductory section describing the issues yet to be resolved, followed by a section detailing interim procedures. A final section lists work program items and describes the proposed approach for developing final methods or further guidance. Because the CMP is now a biennial document, final procedures developed during fiscal years 1993-4 and 1994-5 will be adopted by the Authority Board as official guidelines to expand or supersede the appropriate sections of the 1993 San Francisco CMP, and will go into effect after Board adoption.

Development of this CMP document update was primarily the responsibility of the Authority. The information in Chapter 4: Level of Service Monitoring is extracted from the report prepared jointly by the Authority and the City's Department of Parking and Traffic, which conducted the monitoring of the entire network. That report is available from the Authority as a separate publication. The Department of City Planning contributed to the chapter on Trip Reduction and Travel Demand. Further review and comment was provided by other City departments, the Authority's Citizens' Advisory Committee, the Metropolitan Transportation Commission, transit operators, the Bay Area Air Quality Management District, and Caltrans.

Origins and Intent of the CMP Legislation

The requirements for a Congestion Management Program were established in 1989 as part of a bi-partisan state legislative package, known as the Katz-Kopp-Baker-Campbell Transportation Blueprint for the Twenty-First Century (AB 471). The actual requirements for CMPs became effective when voters approved Proposition 111 on June 5, 1990. For the complete text of the CMP legislation, created in Assembly Bill 471, see Appendix II.

The state legislation not only provides for increases in transportation funding, but also makes significant changes in the requirements for planning and programming of transportation projects to be funded from these sources of revenue. The goal of the legislation is to tie transportation funding decisions to measurable traffic congestion relief, local land use decisions and their impact on the transportation system, and implementation of transportation control measures to meet air quality goals.

The CMP requirements are the legislature's response to the growing traffic congestion phenomenon experienced by all urbanized areas in California. It is widely perceived that traffic congestion is outpacing the traditional

transportation planning process in its ability to provide adequate solutions. In San Francisco, with its high-intensity land uses and extensive transit network, this traffic congestion phenomenon manifests itself differently, posing challenges to the interpretation of the CMP mandate in the city, but for the majority of the state's highly suburbanized metropolitan areas it is a reality, and it has its roots in the following four facts:

a. The currently prevalent low-density suburban growth pattern throughout the state's metropolitan areas does not lend itself easily to cost-effective transit service and is therefore highly dependent on the automobile and on the freeway system; (in short: *transit does not work well in the suburbs.*)

b. Because of the political volatility of pricing strategies (e.g., tolls, paid parking at work sites) and the limited success of ridesharing strategies (i.e., carpooling and vanpooling) in sprawled suburbs, most automobiles still carry just one person, regardless of trip purpose or time of day, so that any new roadway facilities that are built are, by definition, inefficient: even when full of *cars* they carry only a fraction of the number of *people* they could accommodate; (in short: *freeways full of solo drivers shortchange the carrying capacity of the investment.*)

c. These high-cost facilities, which are designed for the automobile but do not maximize the number of *people* carried, result in a high cost per person transported; (in short: *building freeways to address transportation demand is not cost-effective*)

d. Because of the scarcity of land for transportation facilities, rising construction costs, and environmental and air quality constraints, ever growing levels of capital investment are needed in order to build roadways. This, combined with a deteriorating economy and continuing erosion of transportation funding, results in fewer and fewer new miles of roadway facilities being built every year to address a growing demand for transportation; (in short: *it's hard to keep up with transportation demand by building freeways, and we can't afford them either)*

For most of suburbanized California the inability to keep up with transportation demand lends credibility to the prospect of land development coming to a halt because of increasing traffic congestion and deteriorating accessibility. Consequently, the CMP legislation aims at extracting more productivity out of the existing transportation infrastructure while encouraging more efficient use of scarce new dollars for transportation investment, with the intended result of fending off congestion, improving air quality, and ultimately allowing continued

land development where feasible. In order to achieve this, the CMP law mandates a coordinated strategy based on five main concepts:

a. Require more coordination between federal, state, regional and local agencies involved in the planning, programming, and delivery of transportation projects, programs, and services;
b. Favor transportation investments that provide measurable and quick congestion relief;
c. Create a definite link between local land use decisions and their effect on the transportation system
d. Favor transportation solutions that are less dependent on the single-occupant automobile, and improve air quality;
e. Place emphasis on local coordination and responsibility by requiring the designation of a Congestion Management Agency in each urban county in the state.

CONGESTION MANAGEMENT IN SAN FRANCISCO

Applicability of the Concept

The main impetus for the CMP legislation derives from worsening *suburban* transportation conditions, caused by land use patterns that perpetuate over-reliance on the private automobile. Although land redevelopment opportunities exist, San Francisco is essentially a built out city, with an extensive transit network and long standing policies and programs to encourage a balance and truly multi-modal transportation system. It is therefore necessary to, within the constraints of State law, reinterpret congestion management goals and requirements so that they work for San Francisco. The City's "transit first" policy, for instance, presents a challenge to CMP implementation: in San Francisco we tolerate a certain level of traffic congestion in order to encourage transit ridership. The San Francisco General Plan specifically discourages roadway capacity increases, stating that:

> "The existing vehicular capacity of the bridges, highways and freeways entering the city should not be increased and should be reduced where possible." (SF General Plan, Transportation Element, Objective 5, Policy 3).

Congestion management concepts may be at odds with this policy approach if we interpret congestion management as requiring improvements to the throughput of *cars* in the roadway network. However, if we rethink congestion management as maximizing *people* throughput, that is, if we re-interpret congestion management requirements as an opportunity to improve overall mobility in the

city, then we have opportunities to capitalize on the city's significant supply of transit services, and on its relatively pedestrian-friendly environment. San Francisco can show good performance in achieving congestion management goals if the measures used in determining performance are relevant to the city's transportation and land use realities. In this regard, the current CMP legislation's rigid focus on vehicular congestion as the only measure of performance of the transportation system is a major stumbling block. Congestion Management Program activities for the next two fiscal years will include the identification of issues such as this one, which can be pursued as part of the Authority's agenda for legislative change.

The City's Congestion Management Track Record

San Francisco has had considerable success in managing travel demand, especially with respect to control of automobile access to the downtown area during peak commute times. Many of the transportation demand management and land use regulation measures described in Chapters Six and Seven of this document have been in place over the last twenty years and have allowed major growth in downtown trip-making without significant deterioration in operating conditions (or traffic levels of service) for downtown streets.

It is clear that this success is the result of the *combined* application of several major policies, in particular:

- parking pricing and supply policies which discourage driving into downtown;
- transit service investment policies to provide and maintain local travel options that are *truly competitive* with the private automobile; and
- land development policies that gave transportation system investments a chance to keep pace with the growth in trip-making.

In addition to these policies, there were other factors that were essential to the city's ability to absorb the extraordinary levels of employment growth experienced between 1970 and 1985. Such factors include:

- *the city's historic record of investment in local public transit* - The existence of high levels of transit service and coverage within the city provided a credible option to driving, and made politically viable the application of parking pricing policies, and development impact mitigation fees;

- *the BART system and the demographics of downtown employment* - A large portion of employment growth in this period was absorbed by suburban residents. The opening of BART in 1973 constituted a major expansion to

transit capacity with two key features: a) excellent regional access to stations within walking distance of most downtown employment locations, and b) no financial burden to the city for providing adequate transit coverage at the residential (suburban) end of the BART trip; and

- *the city's investment in its street system* - It is seldom recognized that San Francisco's dense grid of streets and arterials is a major transportation asset, providing multiple travel route options, keeping local trips from clogging the freeway system (as is so often the case in the suburbs) and enhancing the system's ability to recover quickly when congestion problems occur.

The city's winning strategy was a truly multi-modal transportation strategy, which allowed each travel market to be served by the transportation modes best suited for it.

Future Strategies

The above discussion of the city's track record highlights the importance of maintaining travel *options* as an essential strategy not just to prevent a worsening of congestion but also to improve mobility.

No less significant in charting future action is a sound understanding of demographic trends. Reflecting changes in the economic structure of the region, as well as national trends, the development boom that characterized the growth of the city's downtown area in the 1970's and 1980's has been replaced by modest employment growth.. San Francisco residents are out-commuting in increasing numbers to take advantage of work opportunities in other Bay Area counties: today the number of San Francisco residents traveling daily to work in Santa Clara county is larger than the number of Santa Clara county residents employed in San Francisco. Commute times by transit for San Francisco residents are increasing, and so is automobile ownership in the city. In fact about half of all drive-alone worktrips into downtown come from within San Francisco. These are disturbing trends at a time when the fiscal crisis at the State and local governments is resulting in curtailment of funding for transit operating expenses. As transit faces these problems, enriching the city's inventory of available transportation options will be a key strategy for congestion management in San Francisco.

Maintaining transit service levels is essential to ensure that transit remains a viable option to the private automobile, but there are significant travel markets within the city which are only marginally suited for transit service and cannot be captured by transit without major operating expense. Other trips simply cannot

be attracted to transit. Ridesharing (carpooling) strategies and non-traditional transit options (zonal express bus service, demand responsive, etc.) may need to be explored as alternatives to drive-alone in some of these cases.

In addition to ensuring compliance with the State's congestion management requirements, improvement of congestion conditions on city streets is necessary to avoid further deterioration of transit travel times. Therefore, San Francisco's congestion management activities will also need to focus on key improvements to congested roadway facilities. Whereas the program's primary emphasis on transit reinvestment, with new service proposed in redeveloping areas, is not in question, street and roadway reinvestment will not be neglected. Particular attention will be paid to projects that improve the operating efficiency of the existing system, such as interconnection of traffic signals to improve vehicular traffic flow, or signal pre-emption to improve the operating speed and reliability of transit vehicles. These projects will be necessary not only to ensure that the current level of congestion does not worsen, but also to improve overall mobility, and help transit re-gain operating speed and retain its market share.

Congestion management activities during the next two fiscal years will include the development of Strategic Analysis Reports (SARs). These will be policy-level thought pieces aimed at facilitating policy-making relative to congestion management by describing systemic congestion, and analyzing likely transportation outcomes taking into account factors such as transportation investment decisions, and transit funding and service policies. SARs will be action-oriented documents to be used, for instance, to systematically identify potential travel markets, such as those described above, matching them with transportation options most likely to effectively serve them, and estimating their potential impact in alleviating congestion levels. Chapter 2 discusses the proposed role of SARs in fostering early coordination by City Departments so that certain congestion management-related actions may be evaluated before they are implemented. Chapter 9 addresses the proposed use of SARs in the Deficiency Plan process. SARs could be developed on topics as wide-ranging as the congestion reduction potential of parking supply and pricing policies; alternative ways to measure congestion relief and mobility benefits for city residents, and the potential congestion management implications of implementation of the Americans with Disabilities Act. The number of SARs to be developed over the next two fiscal years will depend on the need for information to support policy-making, and on the level of effort required by the complexity of the topics chosen.

PROGRAM OVERVIEW

A. Mandated Program Components

The overall strategy embodied in the CMP legislation translates into the following statutory requirements, to be met by all urban counties in the state:

1. Development and adoption of the initial CMP and biennial updates. The CMP document must contain the following elements, which are addressed at length in the remaining chapters of this report:

   - A designated CMP roadway network
   - Traffic level of service (LOS) standards and a methodology for monitoring LOS on the designated CMP roadway network
   - Transit service standards
   - A trip reduction and travel demand element
   - A land use impact analysis methodology
   - A seven-year multi-modal capital improvement program

2. Development of a common database and method for analysis of impacts of local land use decisions on the CMP network.

3. Designation of a Congestion Management Agency for the county.

B. Changes to Transportation Fund Programming

The CMP legislation included the creation of new funding sources, as well as changes to existing fund programming mechanisms, tied to implementation of CMP requirements. The Authority at the local level and the MTC at the regional level have been empowered to make CMP conformance determinations affecting funding eligibility.

1. State Fuel Tax Increment: The CMP legislation established a 9 cent per gallon increase in the state's fuel tax. In order to receive these revenues, urban counties must annually be found in conformance with CMP requirements as described in A above, particularly the monitoring and reporting on congestion levels in the transportation network, and implementation of required CMP actions designed to avoid a deterioration of circulation conditions on the CMP network. In addition, the CMP document itself must be updated every two years.

2. Flexible congestion relief and urban and commuter rail funds: These funds are programmed through the regional transportation improvement program (RTIP), which is developed and adopted by MTC. In order to be considered

for funding through the RTIP, transportation projects must be first included in the Capital Improvement Program of the CMP.

3. Traffic system management funds: Projects that are included in the capital improvement program of the approved CMP receive first priority for Traffic System Management funds, programmed annually by Caltrans.

4. Federal Surface Transportation Program (STP) and Congestion Management and Air Quality (CMAQ) Program Funds: In 1992, the California legislature passed SB 1435, which reconciled the CMP programming process with the new Federal Intermodal Surface Transportation and Efficiency Act (ISTEA). As a result, projects seeking STP or CMAQ funds must first be prioritized by each Congestion Management Agency as part of the development of their biennial Capital Improvement Program for the CMP.

C. Relationship to Ongoing Planning and Programming Efforts

Congestion management programs are a component of a larger set of ongoing transportation planning and programming efforts at the local and regional levels. The following documents are closely tied to the development and implementation of San Francisco's CMP:

1. Regional Transportation Plan (RTP): The CMP is instrumental in implementing the local portion of the regional transportation plan and must be consistent with it. MTC determines consistency among CMPs in the region. MTC makes these determinations as a part of the conformance finding process for CMPs.

2. Regional Transportation Improvement Program (RTIP): A seven-year transportation capital improvements program must be included in the CMP. For a project to be included in the RTIP, it must be included in the capital improvement program of the CMP. The CMPs are therefore a main source from which the RTIP's program of projects is derived.

3. City of San Francisco General Plan: The land use and transportation elements of the city's General Plan provide information relevant to the CMP, such as road network characteristics and procedures for land use impacts analysis. The General Plan also provides general information on topics such as transportation demand management measures that are addressed as part of the CMP.

CMP actions and policies may ultimately have an effect on the policies contained in the General Plan; however, State law does not require that the CMP be incorporated into the General Plan.

4. Air Quality Attainment Plans: MTC's Regional Transportation Plan is required by federal law to conform to the State Implementation Plan for improvement of air quality. Since the CMP must be found consistent with the Regional Transportation Plan, the CMP must therefore also conform to the provisions of the State Implementation Plan. In addition, the San Francisco CMP documents implementation of transportation control measures (TCMs) included in the 1991 Clean Air Plan adopted by the Bay Area Air Quality Management District pursuant to State requirements.

C. Coordination and Public Input

The 1993 CMP was developed incorporating input from City departments, transit operators, MTC, Caltrans District 4, and the Bay Area Air Quality Management District. The CMP Subcommittee of the Citizens Advisory Committee of the Authority also provided detailed review and comments. A public hearing on the Draft 1993 CMP and its environmental documentation was held on October 13, 1993. The 1993 San Francisco CMP was adopted at a noticed public meeting of the Authority Board, on November 22, 1993.

CHAPTER 2

CONGESTION MANAGEMENT AGENCY

Legislative Requirements

California Government Code section 65089 (a), as amended, states "A congestion management program shall be developed, adopted, and updated biennially, consistent with the schedule for adopting and updating the regional transportation improvement program, for every county that includes an urbanized area, and shall include every city and the county. The program shall be adopted at a noticed public hearing of the agency. The program shall be developed in consultation with, and with the cooperation of, the transportation planning agency, regional transportation providers, local governments, the [California] department [of Transportation], and the air pollution control district or the air quality management district, either by the county transportation commission, or by another public agency, as designated by resolutions adopted by the county board of supervisors and the city councils of a majority of the cities representing a majority of the population in the incorporated area of the county." For the complete text of the CMP statutes see Appendix II.

Legislative Intent and Application to San Francisco

One of the main thrusts of the CMP legislation is to foster coordination of local land use and transportation investment decisions at the county or subregional level. In order to ensure local involvement in this process, which turns more complex when the number of local jurisdictions involved increases, the CMP law vests significant authority and responsibility on the Congestion Management Agencies (CMAs). For example, in order to receive state and federal funds, transportation projects in an urban county must now be recommended by that county's CMA as part of its Congestion Management Program. CMAs therefore act as a policy forum and technical resource to guide and help to resolve transportation problems within counties when those problems have implications across city boundaries. San Francisco's distinct status as a city and county dictates a somewhat different role for the CMA in this regard, with the focus of involvement shifting to address problems across county lines (such as the effects of regional commute patterns into San Francisco), as well as issues of coordination of city department activities affecting congestion management, such as trip reduction program implementation, or transit service improvements.

The San Francisco County Transportation Authority

a. Designation and Composition

On November 6, 1990, the Board of Supervisors designated the San Francisco County Transportation Authority (Authority) as the CMA for the County. The Authority Board of Directors consists of the eleven members of the San Francisco Board of Supervisors, acting as Commissioners.

b. Roles and Responsibilities

The Authority is a special-purpose government agency, created on November 7, 1989, when San Francisco voters passed Proposition B. Proposition B mandated a 1/2 cent increase in the local sales tax for a period of 20 years, to fund San Francisco's transportation projects and services. The Authority is responsible for the administration and strategic prioritization and programming of the revenues generated by Proposition B. Beyond their own purchasing power, these revenues also allow the city to leverage large amounts of state and federal funds for transportation investments in San Francisco.

In its capacity as the CMA for San Francisco, the Authority has primary responsibilities in the following areas:

- Development and adoption of the biennial CMP document and related implementation guidance.
- Monitoring of City agencies' compliance with CMP requirements.
- Programming of various federal and state transportation funds, and
- Policy input into the regional transportation planning and programming process.

The Authority's dual responsibilities for strategic programming of Proposition B funds (through the recently completed Strategic Plan) and for prioritization and programming of State and Federal funds through the CMP process, represent a major opportunity for the City to achieve a high degree of coordination in its transportation planning decisions, and to optimize the City's investments in transportation projects and services. The leveraging of State and Federal funds through strategic use of Proposition B Moines for the required local match is a good example of how effective this process can be.

In addition, acting as the CMA, the Authority plays a key role in evaluating and providing guidance on major local transportation projects and policies which may affect compliance with congestion management requirements or attainment of CMP standards.

c. Implications of the Board's Multiple Roles

As described above, the San Francisco Board of Supervisors also serves as the Authority's Board, and as the CMA Board. These multiple roles require careful balancing of the Board's responsibilities. Policy decisions made by the Board of Supervisors may have negative congestion management impacts and place the Board, as CMA, in a position to find the City in non-conformance with the CMP. This may in turn generate difficult Proposition B funding choices for the Authority Board.

In order to minimize the potential for conflict, the Authority cannot limit its role to just monitoring CMP conformance after the fact, and must instead take a proactive role to serve as a resource in analyzing the potential congestion management implications of transportation-related actions or policies proposed for the city. Such an approach will allow the Board to better shape the policy outcomes by anticipating potential problems as part of its decision-making process at a time when policy options may still be available, instead of having to react when congestion impacts reach crisis proportions and require hasty funding decisions.

d. Relationship to City Agencies

State law mandates that the Authority, acting as Congestion Management Agency (CMA), must annually determine if the City is in conformance with the adopted Congestion Management Program. A finding of non-conformance has potentially significant consequences for transportation funding in the City. Also according to state law, its is the City's responsibility to ensure that transportation projects, programs, and services are put in place, through its implementing departments, to maintain conformance with the CMP.

In fulfilling its CMA mandate the Authority must function as an independent agency, to be able to objectively and credibly evaluate CMP conformance. This dictates a special relationship with City departments involved in transportation-related actions which must be assessed annually relative to their congestion management impacts. On the other hand, because of the Board's multiple roles, as described in the previous section, the Authority's approach is to act as a resource, maximizing coordination with the City's departments responsible for planning and implementation of transportation actions, so that such actions may be evaluated for congestion management impacts before they are put in place. The Authority's Strategic Analysis Reports (SARs) will be a key component of that coordination function, which will involve early identification of potential

congestion management problems and opportunities, fostering continued communication with implementing departments, and providing system-level evaluation of proposed actions where appropriate.

d. **Relationship to Regional Planning/Programming Agencies**

As the Congestion Management Agency for San Francisco, the Authority plays a key liaison role with MTC, the Bay Area's regional transportation planning agency, and with the Bay Area Air Quality Management District (BAAQMD), the agency responsible for implementation and monitoring of the 1991 Clean Air Plan. The Authority serves as the focal point for local input into MTC's Regional Transportation Plan (RTP), which establishes the overall vision for long-range transportation development and funding in the region, and the Regional Transportation Improvements Program (RTIP). Through its membership in the Bay Area Partnership, the Authority plays a key role in shaping the evolution of planning and programming processes affecting San Francisco's ability to capture transportation investments and preserve its economic vitality. Moreover, through its leadership in this forum the Authority is in a position to influence the debate over the vision and goals for transportation planning in the region, bringing to bear San Francisco's special perspective on multi-modalism and mobility.

CHAPTER 3

CMP-DESIGNATED ROADWAY NETWORK

Legislative Requirements

California Government Code Section 65089(b)(1)(A) requires that the designated roadway system include at least all state highways and principal arterials. No highway or roadway designated as part of the system shall be removed from the system. No clarification is provided in the statutes as to the definition of "principal arterial."

The statutes also refer to regional transportation systems as part of the required land use impacts analysis program, California Government Code Section 65089(b)(4). In 1991, the Bay Area's Congestion Management Agencies (CMAs) designated Congestion Management Program (CMP) networks in coordination with MTC's development of the Metropolitan Transportation System (MTS). The MTS network, which includes both highways and transit services, was subsequently designated as the Congestion Management System, required by the federal Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. The Metropolitan Transportation Commission contracted with the congestion management agencies in the Bay Area to help develop the MTS and to use the CMPs to link land use decisions to the MTS. The 1993 CMP therefore makes a distinction between the CMP network used for monitoring conformance with the level of service (LOS) standards, and the MTS, used for the CMP's land use impacts analysis program (see Chapter 6).

Legislative Intent and Application to San Francisco

CMP legislation requires the designation of a network of roadways to allow the systematic monitoring of performance in relation to established LOS. The network is also the basis of analysis for estimating the transportation impacts of future actions, be they transportation projects proposed as part of the CMP's Capital Improvement Program (CIP), or land development decisions affecting transportation and air quality conditions in the city. For a discussion of the establishment and monitoring of levels of service on the CMP-designated roadway network see Chapter 4.

San Francisco CMP Roadways

CMP legislation requires that all state highways (including freeways) and principal arterials be included in the CMP network. Designation of facilities as part of this network must strike a balance between the cost of annual monitoring of the network according to mandated methods (see Chapter 4), and the

usefulness of the network to track the transportation impacts of land development decisions, as well as to assess the congestion management implications of proposed transportation actions. A network containing numerous local thoroughfares may permit more definitive conclusions about the projected congestion impacts of a specific development project than a network that only includes the freeways, particularly in San Francisco, where most urban traffic occurs on city arterials. The next sections document the network selection criteria and process used in the initial San Francisco CMP in 1991, and describes the current network.

a. Selection Criteria

Consistent with State requirements, the San Francisco CMP roadway network includes all freeways and state highways, as well as principal arterials. The statutes do not provide a definition of "principal arterials" that must be included in the network. San Francisco has defined these as the Major Thoroughfares designated in the Transportation Element of the City's General Plan. Major Thoroughfares are defined as follows:

> *"cross-town thoroughfares whose primary function is to link districts within the city and to distribute traffic from and to the freeways; these are routes generally of city wide significance; of varying capacity depending on the travel demand for the specific direction and adjacent land uses."*

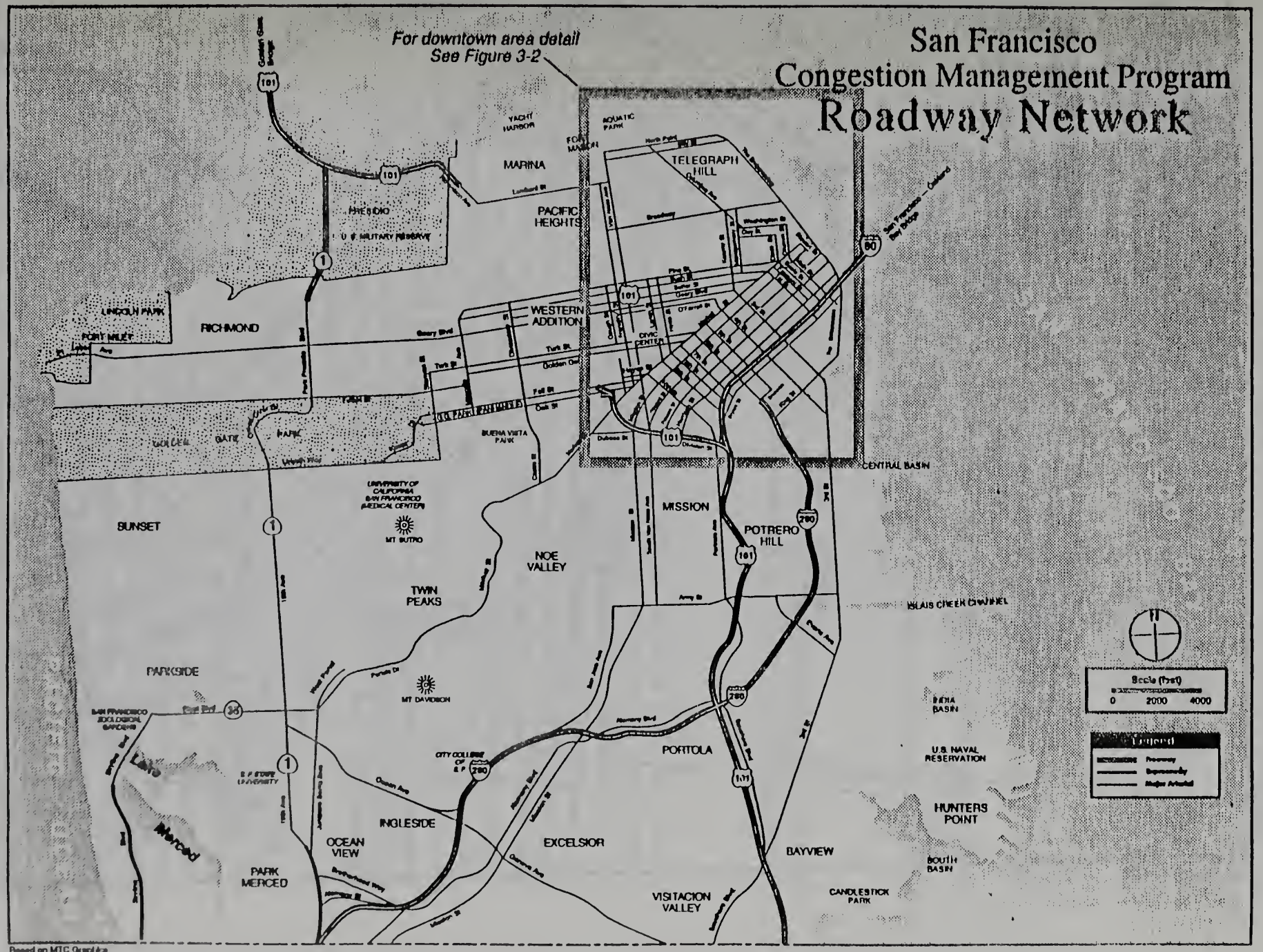
Several additional thoroughfares - Market Street, Mission Street, Sutter Street, outer Geary Boulevard, and portions of Turk Street - have also been included in the CMP roadway network. These streets experience serious conflicts between auto traffic and high volumes of transit service, and may be susceptible to congestion management techniques such as signal pre-emption at key intersections, to reduce delays to transit vehicles.

The next update of the City's General Plan should consider modifications to the Major Thoroughfare network, to reflect facilities included as principal arterials in the designated CMP roadway network, as appropriate.

b. Current Network

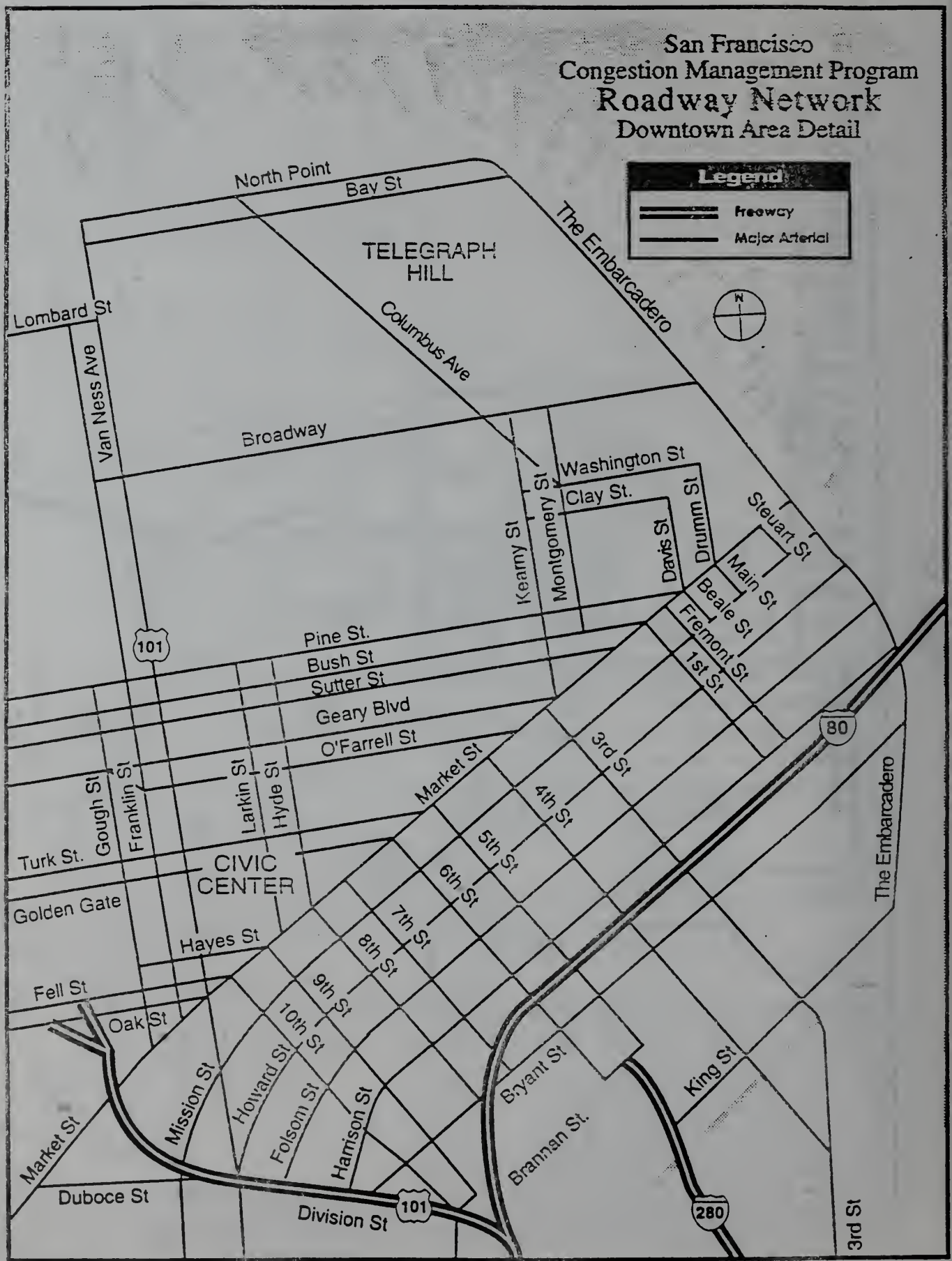
Figure 3-1 depicts the complete CMP roadway network for San Francisco, which comprises 134 miles of roadway facilities. Figure 3-2 shows a detail for the downtown area.

Figure 3-1



Based on MTC Graphics

Figure 3-2



Based on MTC Graphics

Not to scale

Freeways and State Highways

San Francisco's CMP roadway network includes 17 miles of freeways in the city, on Interstate 80, Interstate 280, and US Route 101. A total of 15 miles of State routes designated along city streets are also part of the CMP roadway network, as follows:

- US Route 101 - Richardson Avenue, Lombard Street west of Van Ness Avenue, and Van Ness between Lombard Street and Golden Gate Avenue;
- Route 1 - Park Presidio Boulevard, 19th Avenue , and Junipero Serra Boulevard south of 19th Avenue;
- Route 35 - Sloat Boulevard between 19th Avenue and Skyline Boulevard as well as Skyline Boulevard.

City Arterials

The CMP network includes 102 miles of city arterials. Appendix III lists all city arterials included in the CMP network in addition to those designated as state routes.

c. **Proposed Changes - Rationale**

State law prohibits the removal of roadway facilities from the initially designated CMP network. This is intended to ensure proper monitoring of system performance. Facilities that are physically removed from the transportation system, such as the Embarcadero Freeway, are obviously not affected by this prohibition, but will be evaluated for future inclusion and monitoring as part of the CMP network once replaced or rehabilitated. New facilities may be added to the CMP network without restrictions, subject to the established criteria for inclusion. The analysis of the CMP roadway network conducted as part of the 1993 CMP update did not identify any additional roadway facilities for inclusion. However, in order to improve the reliability of performance (LOS) monitoring, changes were introduced to the segmentation of roadway facilities. These changes and their rationale are described in Chapter 4.

d. **Relationship to the MTS**

San Francisco's CMP roadway network is broadly consistent with the Metropolitan Transportation System (MTS), as defined by the Metropolitan Transportation Commission's (MTC) latest revisions to the Regional Transportation Plan. The MTS is a regional network of roadways, transit corridors and transfer points, identified by the MTC on the basis of specific criteria. The State highways and major thoroughfares designated in San Francisco's CMP roadway network are all included in the regional MTS

network. There are a few instances in which the local CMP roadway network is not identical to the regional MTS network due to differences in the criteria used to define each network. San Francisco's CMP and MTS networks are coordinated with the networks of adjacent counties, to ensure regional connectivity.

As a result of a recent agreement, the MTC has delegated responsibility to the Authority for implementation of certain mandates contained in the federal Interstate Surface Transportation and Efficiency Act of 1991, including the analysis of potential impacts on the MTS of proposed local land use decisions (see Chapter 7).

Work Program Items - Key Milestones

- Consider additional roadway facilities for the network - By January 1995 (for the next CMP update).

CHAPTER 4

ROADWAY LEVEL OF SERVICE (LOS) MONITORING

The previous Chapter described the CMP roadway network and the criteria for inclusion of certain roadway facilities. This Chapter documents the methodology used for monitoring this system, and provides a comparison of monitoring results from 1991 and 1993.

Legislative Requirements

California Government Code section 65089 requires the establishment of operating standards for the CMP-designated network of roadway facilities, and it leaves to the CMA the choice among allowable methods for measurement of level of service (LOS) as detailed in one of the following sources:

- Transportation Research Board Circular 212 (TRC 212),
- Transportation Research Board's Special Report 209: *Highway Capacity Manual* (*HCM*), latest version; or
- A uniform methodology adopted by the CMA that is consistent with the *Highway Capacity Manual.*

The statutes state that "in no case shall the LOS standards established be below the LOS E or the current level, whichever is farthest from LOS A, except where a segment or intersection had been designated as deficient and a deficiency plan has been adopted."

Legislative Intent and Application to San Francisco

LOS is a traffic engineering concept designed to describe the operating conditions on a roadway. LOS describes operating conditions on a scale of A to F, with A being the best (free flow), and F being the worst (bumper-to-bumper) conditions. Attributes that make up the A to F degrees of the LOS scale are a mixture of quantitative measures (such as speed and travel time), and qualitative observations, such as freedom to maneuver. The result is a system that is highly descriptive, but which also allows meaningful quantification and comparison of results for different facilities and situations.

LOS standards are the reference point or quantified goal against which it is possible to measure the performance of the CMP roadway network. If actual system performance falls below the standard, (i.e., congestion worsens) actions must be taken to restore or improve LOS. Annually the Congestion

Management Agency is required to determine the City's conformance with the CMP, including attainment of LOS standards.

The intent of the legislation is to use LOS as the main indicator of congestion and as the uniform yardstick for measurement of improvement, as well as to gauge the congestion abatement potential of proposed transportation solutions. The choice of LOS for this purpose reflects the suburban roots of the congestion management legislation: congestion relief is to be measured by the ability of the transportation system to move automobiles, because in the suburbs the single-occupant automobile is still the prevalent mode of transportation. It also reflects the fact the LOS has been used and codified more extensively and systematically than any other transportation facility performance method. Therefore LOS is also the method that offers least potential for controversy or challenge when a CMA makes a finding of non-conformance.

Improvements on the LOS scale ensure better travel conditions for motorists, but the LOS scale does not take into account the *people* throughput potential of a roadway. Under optimum (LOS "A") operating conditions, a city arterial may be carrying the maximum number of automobiles at high speed, but if each vehicle carries only the driver the *people* throughput of the facility is suboptimal. San Francisco faces a double challenge on this issue: on the one hand the City must comply with the LOS requirements and prevent LOS conditions from deteriorating below the set standards; on the other hand, it must strive to identify a performance measurement method that reflects San Francisco's transportation realities more appropriately than LOS.

Over the next decade, the performance measurement method will play an increasingly significant role in San Francisco's congestion management efforts as the City undertakes or proceeds with the construction of a number of significant transportation projects, such as the Embarcadero Roadway, the Transbay Terminal Separator Structure, and the MUNI Metro Turnback. Mitigation of congestion impacts and analysis of deficiencies will require significant coordination between City departments and the Authority, to ensure continued conformance with CMP requirements.

The maintenance of LOS standards on CMP roadways in San Francisco will require a comprehensive and multi-modal approach which takes into account the congestion relief potential of transit and other non-automobile based solutions, as well as operational improvements to roadways. During 1993-4 the Authority will continue the development of specific information and guidance about congestion management actions and their congestion relief potential in different situations. In particular, the Authority will investigate, through its Strategic

Analysis Reports (SARs) or through corridor or areawide evaluations, the appropriate geographic reach and effectiveness of congestion management measures.

Technical Approach

Annual LOS monitoring on the entire CMP network is performed by the Department on Parking and Traffic (DPT) using Federal planning funds available through the Authority. At the time of annual conformance findings the Authority, acting as the CMA, will assess the City's conformance with LOS standards based on the results of monitoring performed by DPT. The CMA will ensure that LOS measurement methods used by DPT, Caltrans, or any other agencies involved in monitoring the CMP network are consistent with State law.

a. **LOS Standard**

The traffic LOS standard for San Francisco is consistent with CMP mandated criteria and was established at E in the initial (1991) CMP. The law exempts from monitoring all CMP network facilities which were already operating at LOS F at the time of baseline monitoring conducted in connection with the development of the first CMP in 1991.

b. **Methodology**

The methodology used for monitoring LOS on San Francisco's CMP network follows the specifications detailed in the Highway Capacity Manual. All 134 miles of freeways and arterials in the network are monitored using a floating car technique, which allows determination of LOS on the basis of average operating speed. For this purpose the network is divided into 89 segments. For a detailed description of monitoring techniques, refer to Appendix IV.

i. **Freeways**

US Route 101, Interstate 80, and Interstate 280 are the only roadway facilities with designated freeway status in San Francisco. Each of these freeways also serves as a primary gateway for interregional travel between San Francisco and adjacent counties. As mandated by law, LOS monitoring for these facilities is based on average operating speed. In addition, an alternative measure of LOS using the ratio of observed traffic volumes to freeway capacity (or "V/C ratios") at selected county border screenlines is used as a test of reasonableness of LOS monitoring results. Volume data for Interstate 80 at the Bay Bridge toll plaza are available through the Metropolitan Transportation Commission for this purpose. Similarly, volume data for US Route 101 at the Golden Gate Bridge toll plaza are available

from the Golden Gate Bridge, Highway, and Transportation District. For this facility V/C ratio is calculated for the morning peak period, inbound into San Francisco, because toll payment allows more accurate enumeration than outbound (toll free) travel.

ii. Arterials

Arterials designated in San Francisco's CMP network include the following three groups of streets:

- √ segments of state routes which operate on City streets;
- √ major thoroughfares identified in the City's General Plan;
- √ other major streets with significant conflicts between automobile traffic and high volumes of transit service.

These three groups of City streets form the backbone of San Francisco's arterial network. The operation of these arterials is controlled through an interconnected set of signalized intersections. The overall performance of each arterial is best evaluated through analysis of segments of each roadway. Evaluation is performed following the "Urban and Suburban Arterials" methodology of the 1985 Highway Capacity Manual (Chapter 11). The methodology is applied to determine level-of-service for each arterial segment using direct field measurements of average travel speed.

c. Network Segmentation

Documentation of Method and Criteria

Development of the 1993 CMP included a comprehensive effort to document the criteria used in 1991 to establish the initial segmentation of the CMP roadway network in San Francisco, including freeway facilities. The following five criteria were identified as major determinants of segment limits for the city arterials in the CMP: predominant development patterns (including factors such as number of driveways, institutional users, etc.), changes in speed limits, major cross streets, significant changes in traffic volumes, and occurrence of freeway ramps. These criteria are dictated by accepted traffic engineering practice, and they reflect factors that are generally recognized as significant in explaining the operating behavior of a roadway. Appendix IV contains a listing of all CMP arterials in San Francisco, highlighting the specific criteria that apply to determine the geographic limits of each segment.

For freeway facilities the segmentation criteria are simpler. They include interchange on and off ramps, and points were two freeway facilities merge

or bifurcate. Segment limits for freeways in the San Francisco CMP are also shown in Appendix IV.

Segmentation Changes

Table 4-C lists all CMP arterials where segmentation changes have been introduced, including a technical justification. Changes were introduced in the segmentation of 18 arterials in the network. The new arterial segments follow more closely the five segmentation criteria described above, and they provide a better framework for monitoring of LOS, improving comparability of results among similar facilities. By better reflecting local conditions these new segments increase the reliability and explanatory power of LOS measurements on the network. This is essential to provide a solid basis for decision-making leading to development and implementation of congestion management actions. Further segmentation changes will be considered during fiscal years 1993-4 and 1994-5, as necessary.

Monitoring Results

In order to determine initial ("baseline") LOS conditions, monitoring of the CMP network was performed by the Department of Parking and Traffic during the summer of 1991. This initial monitoring also allowed identification of network segments at LOS F which are legislatively exempted from conformance with the established LOS "E" standard but will continue to be periodically monitored and targeted for congestion management measures as appropriate. CMP arterial and freeway segments identified at LOS F in the 1991 San Francisco CMP are shown in Appendix IV.

Tables I through IV in Appendix IV show LOS monitoring results for all segments of arterials and freeways in the CMP network. The information includes segment length, direction of travel, time of day (AM and PM peak), average operating speed measured, and LOS results for both 1991 and 1993.

Table 4-C
Rationale for Changes to Arterial Segmentation Since 1991

Third Street	Eliminated Fairfax Street as a break point. Evans Avenue is the new break point because of the change in speed limit and because Evans is a major cross street.
Alemany Boulevard	Lyell Street is a necessary break point because of a speed limit change.
Army Street	Because of the size of the U.S. 101 interchange at Army Street circle, a break point was established on each side of it. One is at Kansas Street and a second is at Bryant Street.
Bayshore Boulevard	Industrial is a necessary break point because of nearby off and on-ramps.
Bush Street	Gough is the best divider to break Bush into two segments because land use changes occur at Gough and because it is a major cross street.
Duboce Avenue	Folsom Street was eliminated as a break point and replaced with Mission Street, because of the presence of on and off ramps to 101.
Evans Avenue and Fremont Street	The 1991 intermediate segment limits could not be justified and were eliminated (no apparent change in traffic flow conditions)
Fulton Street	Arguello was identified as an intermediate segment limit because it is a major cross street and because of a speed limit change.
Harrison Street	Eliminated 2nd. Street and substituted First Street is the first break point because of the I-80 on-ramp.
Junipero Serra Blvd	The first segment boundary is 19th Avenue instead of Holloway, as justified by the change in speed limit and also because 19th Avenue is a major cross street.

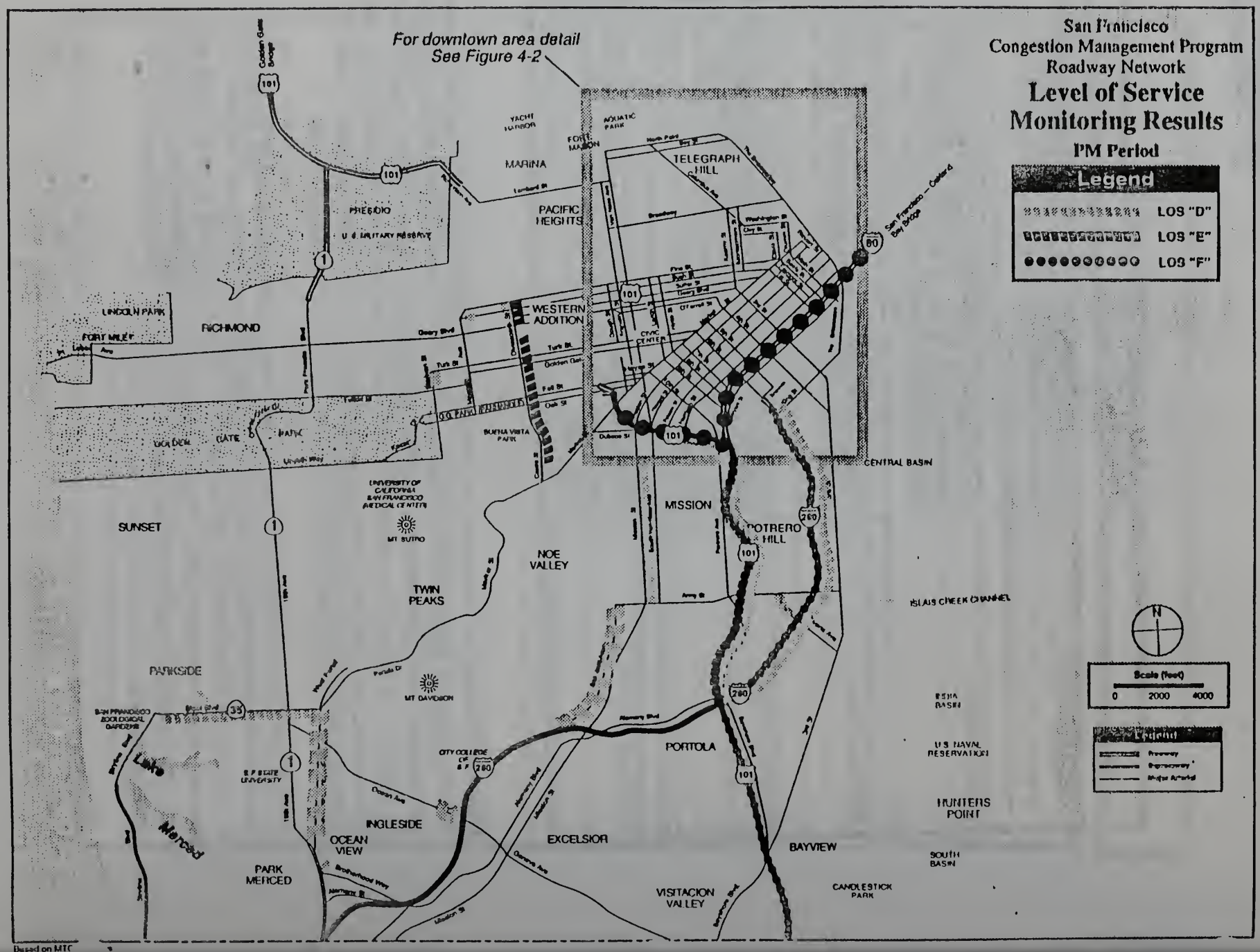
Table 4 - C (Contd.)

Lombard Street	Eliminated intermediate segment boundaries because land uses and traffic conditions are uniform along this street.
Market Street	Established a new segment boundary at Clipper because of a change in grade on each side of Clipper. Eliminated unjustified breaks at Danvers, Sanchez and Gough
Mission Street	Eliminated intermediate boundaries between 14th and Army and between Army and Ocean to better reflect land use.
O'Farrell Street	Eliminated intermediate segment boundaries at VanNess, Leavenworth and Taylor, which created segments too short for accurate measurement. Mason is the new break point because of land use changes.
Van Ness Avenue	Added Golden Gate Avenue as an intermediate segment boundary because of land use changes (start of the Civic Center area).

LOS monitoring for the current conformance determination cycle was performed during July and August 1993. Figures 4-1 and 4-2 show CMP network segments operating at LOS D or worse during the 1993 monitoring for the PM peak period. In addition to arterial segments already identified at LOS F during the 1991 monitoring, the 1993 monitoring identified only one arterial segment, on Clay St. (between Kearny and Davis) operating at LOS F during the AM peak.

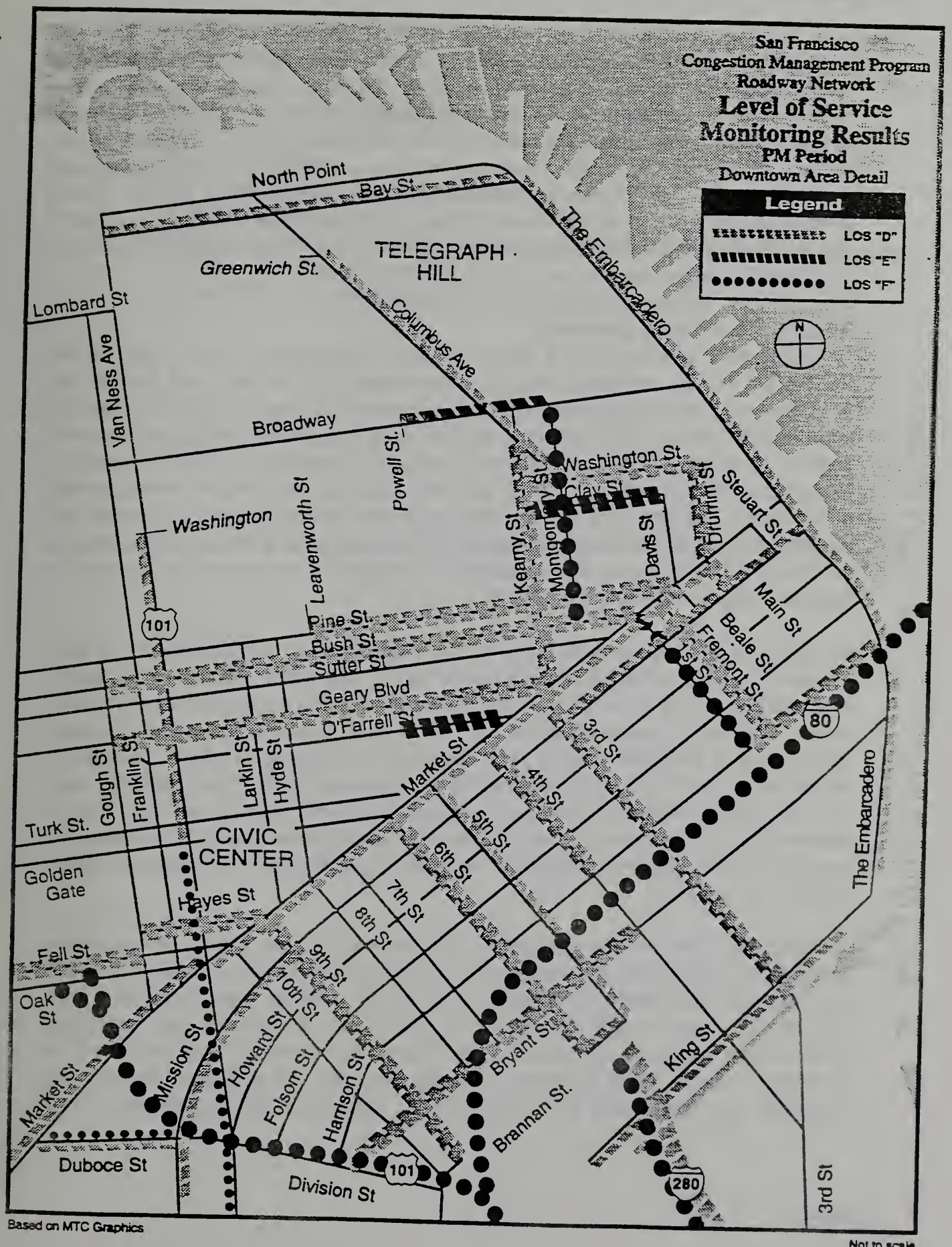
During the PM peak there were no new segments identified at LOS F. In order to corroborate these results, and to determine the contribution of regional trips to this LOS F measurement, the segment on Clay Street will be monitored every four months until April 1994. If the segment is found to be deficient during the April monitoring, the City will be required to prepare and implement a deficiency plan.

Figure 4-1



Based on MTC

Figure 4-2


San Francisco
Congestion Management Program
Roadway Network
Level of Service
Monitoring Results
PM Period
Downtown Area Detail
Legend
LOS "D"
LOS "E"
LOS "F"
N
North Point
Bay St
TELEGRAPH HILL
Greenwich St.
Lombard St
Columbus Ave
The Embarcadero
Van Ness Ave
Broadway
Powell St.
Washington St
Clay St
Stewart St
Washington
Leavenworth St
Keamy St
Montgomery St
Davis St
Drumm St
Main St
Beale St
Fremont St
1st St
Pine St
Bush St
Sutter St
Geary Blvd
O'Farrell St
101
80
3rd St
4th St
5th St
6th St
7th St
8th St
9th St
10th St
Market St
Gough St
Franklin St
Larkin St
Hyde St
Turk St
CIVIC CENTER
Golden Gate
Hayes St
Fell St
Oak St
Mission St
Howard St
Folsom St
Harrison St
Bryant St
Brannan St
King St
Duboce St
Division St
280
3rd St
Based on MTC Graphics
Not to scale

In general, the 1993 monitoring shows some improvement in overall traffic conditions over the entire arterial network. There are many possible factors contributing to explain this change, particularly the downturn in the California economy, which has manifested itself in a the decline in the total number of jobs in San Francisco and in the region, as well as a slowing down of commercial activity in the city. Improvements and standardization in the speed measurement technique introduced during 1993 may also account for some of the differences in LOS measurements from 1991. The freeways show no significant change.

Future Monitoring Approach

In addition to average speed measurements, during fiscal year 1993-94 the Authority will be exploring with the Department of Parking and Traffic the possibility of systematizing existing measurements of arterial traffic volumes by tube counts (mechanical counters) so that they can provide additional data at regular intervals. Other possibilities, including installation of traffic counting loops detectors at permanent count stations, and the need for new cordon counts of downtwn (the last one was in 1983) will also be considered. Although not acceptable for CMP conformance determination purposes, arterial volume counts can be used to monitor the progress of congestion management actions in between annual LOS measurements.

In order to determine frequency of LOS monitoring, each segment of San Francisco's CMP network is assigned to one of two tiers. Roadway segments operating at levels of service D or E (poor conditions) at the time of the most recent monitoring are classified as Tier 1, and subject to average operating speed monitoring at least once every year. Segments operating at LOS A through C are classified as Tier 2, and monitored over a two-year cycle. The Authority may require more frequent average operating speed monitoring of Tier 1 or 2 segments, if tube counts or other evidence gathered between annual conformance determinations suggests significant or more rapid increase in congestion than initially anticipated.

Although the focus of the Congestion Management Program is on system-level analysis and link-level measurement of LOS, in order to more closely track the evolution of congestion problems on the CMP network, the Authority may require an examination of operating conditions at certain intersections. Intersection analysis techniques will follow the methodology described in Chapter 9 of the 1985 Highway Capacity Manual. In addition, operational analyses of intersections for assessment of impacts in connection with land

development proposals will follow the analytical methods detailed in the City's environmental review guidelines (see Chapter 7: *Land Use Analysis Program*).

Work Program Items - Key Milestones

- Monitor newly identified LOS F segment on Clay St. every four months until April 1994
- Make final determination of deficiency for new LOS F segment if it remains at LOS F in April 1994
- Develop approach for incorporation of traffic count information (arterials and freeways) into the annual monitoring process, by May 1994.
- Propose CMP network segmentation changes if necessary, by July 1994.

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CHAPTER 5

TRANSIT SERVICE STANDARDS

Legislative Requirements

California Government Code section 65089(b)(4) requires Congestion Management Agencies to establish Transit Service Standards, including:

Frequency: typically, the number of transit vehicles (buses, trains or ferries) per hour (e.g., 4 buses per hour). The inverse of the frequency is called "headway", which is the time between transit vehicles (e.g., 15 minutes between buses).

Routing: the pattern of the transit route network (e.g., radial, grid, etc.) and the service area covered (e.g., percent of total population served within one-quarter mile; or percent of total urbanized area served, etc.).

Coordination: the linkages between transit services provided by different operators (e.g., timed transfers at transit centers, joint fare cards, etc.).

Legislative Intent and Application to San Francisco

The transit standards are intended to work in concert with roadway LOS standards and trip reduction components of the Congestion Management Program, to achieve improvements in congestion conditions and air quality.

The legislation provides no guidance regarding monitoring of transit service against established service standards. Transit's role in congestion management is otherwise just hinted at in the law, for example in connection with Deficiency Plans (see Chapter 8). The marginal treatment of transit in the legislation has two explanations: first, congestion management legislation was informed primarily by a suburban understanding of mobility, where transit carries a marginal portion, at best, of total daily trips; and second, the legislation provided neither operating funds nor an explicit congestion management role for transit operators. In fact the law places responsibility only on local jurisdictions for implementation of specific congestion management actions even though local jurisdictions generally have neither the authority to dictate transit service improvements, nor the predisposition to fund them.

In a densely built up urban setting like San Francisco, transit plays a substantive role in enhancing individual mobility, creating opportunities to develop highly integrated congestion management strategies. In addition, the

jurisdictional authority of the City over its main local transit provider (MUNI) makes it possible to expect a closer link between transit service policy decisions and congestion management outcomes. The lack of a clear legislative link between funding for transit operations and CMP requirements dictates an approach that relies on cooperation among all transit operators, the City, and the Authority to ensure that service standards are maintained.

Although the legislative intent is clearly to encourage the use of alternatives to traveling by single-occupant automobile, lack of additional funding for transit operations dictates a cautious approach to determining the degree to which congestion mitigation will be dependent on expansion of traditional fixed-route transit service, particularly in light of the City's current fiscal crisis, which may trigger MUNI service cuts. Other alternatives for improving mobility and addressing congestion are addressed in the Chaper 6: Trip Reduction Element.

Coordination

Senate Bill 602 requires that MTC, in coordination with the Bay Area's Regional Transit Coordinating Committee (RTCC), develop rules and regulations for fare and schedule coordination in MTC's nine-county Bay region. The SB 602 process, already under way for two years, is considered sufficient to meet the intent of CMP law regarding transit service coordination in the region. Compliance with the SB 602 process by MUNI and all other operators serving San Francisco will therefore constitute sufficient grounds for a finding of conformance with CMP transit coordination requirements.

Frequency and Coverage

Table 5-A shows frequency and coverage standards for all transit operators that provide service in San Francisco. For ease of understanding, in all cases frequency standards are expressed using the concept of "headway", which is the time between two consecutive transit vehicles in a given route. For example: instead of "4 buses per hour" (i.e., frequency of service), the tables show "15-minute headways".

A number of transit operators provide connections to and from points outside the city. Because of the predominantly suburban, low-density environment in which they function, which limits the amount and kinds of service they can provide, these operators have established significantly different standards from those that MUNI is expected to achieve in San Francisco. These differences are reflected in Table 5-A. The transit standards are essentially established policy and in most cases are taken directly from each operator's current Short Range Transit Plan.

Table 5-A

Transit Service
Frequency and Coverage Standards
MUNI

Frequency Standard

20-minute maximum headway on radial and cross-town lines.
30-minute maximum headway on community and feeder lines.

Coverage Standard

Walking distance to a route is a quarter mile or less.

AC TRANSIT

Frequency Standard

SERVICE TYPE	TIME PERIOD				
	Peak	Mid-day	Night	Owl	Weekend/Holidays
Transbay Express	30	--	--	--	--
Transbay Basic	15	30	30	--	--

Coverage Standard

AC Transit provides two levels of service to the Transbay Terminal in San Francisco. Transbay Express provides medium to high frequency peak-hour service between San Francisco and selected areas of the District where there is demand for transit services which BART cannot meet. Transbay Basic provides direct service between San Francisco and major East Bay areas that are not well served by BART; the service operates all day at a medium to high frequency on a local and/or limited stop basis.

Table 5-A (cont.)

BART

Frequency Standard

TIME PERIOD	LINE Concord Daly City	 Fremont Daly City	 Richmond Daly City
Weekday Peak	7.5	12	15
Weekday Mid-day	15	15	15
Weekday Night	20	--	--
Saturday Day	20	20	20
Saturday Night	20	--	--
Sunday/Holiday all day	20	--	--

Coverage Standard

BART rail service is provided between the hours of 5:00 a.m. and approximately 1:00 a.m. Monday through Friday, 6 a.m. to approximately 1:00 a.m. on Saturdays, and 8 a.m. to approximately 1:00 a.m. on Sundays and major holidays. Closings for individual stations are timed with the schedule for the last train beginning at approximately midnight.

BART has eight stations in San Francisco: Four spaced a half mile apart on Market Street and four at variable distances in the southwestern part of the City.

Table 5-A (cont.)

CALTRAIN

Frequency Standard
30-minute headways during the peak
2 hour headways off-peak
Coverage Standard
The CalTrain system operates on a 46.9 mile route between San Francisco and San Jose. There are 26 stations in the 16 cities that CalTrain serves, including four in San Francisco. Stations are spaced between 1.0 and 4.1 miles apart.

GOLDEN GATE TRANSIT

Frequency Standard

	TIME PERIOD	
	Peak	**Base**
SERVICE TYPE		
Commute Bus	15	--
Basic Service Bus	30	60
Larkspur Ferry	30	2 hrs.
Sausalito Ferry	75	75

Coverage Standard

Commute bus routes operate weekdays, in the peak travel direction, between residential areas in Marin and Sonoma Counties and the San Francisco Finance District and Civic Center.

Basic service routes operate all day, seven days a week, between the Transbay Terminal and Civic Center in San Francisco and various suburban centers within Marin and Sonoma Counties.

The Sausalito Ferry operates with one boat and can only provide service as quickly as it can travel back and forth between Sausalito and San Francisco, usually an hour and a half.

Table 5-A (cont.)

SAMTRANS

Frequency Standard

SERVICE TYPE	TIME PERIOD Peak	Base
Commute Bus	30	--
Basic Service Bus	--	60

Coverage Standard

1. Serve each city within San Mateo County with at least one bus route.

2. Maintain bus service within the following regional corridors:
   - o Highway 82 (El Camino Real)
   - o Highway 92 (San Mateo Bridge)
   - o Highway 101
   - o Highway 1 north of Half Moon Bay

3. Maintain bus feeder service to CalTrain stations located within San Mateo County at current levels (FY 1990/91).

4. Maintain bus feeder service to the Daly City BART station at current levels (FY 1990/91).

Work Program Items - **Key Milestones**

- Establish a procedure for conformance verification - By April 1995

CHAPTER 6

TRIP REDUCTION ELEMENT

Legislative Requirements

California Government Code Section 65089 (b)(3) requires development of a trip reduction and travel demand element that promotes alternative transportation methods, such as carpools, vanpools, transit, bicycles, and park-and-ride lots; improvements in the balance between jobs and housing; other strategies, including flexible work hours and parking management programs; and parking cash-out programs. Each local jurisdiction was expected to adopt a Trip Reduction and Travel Demand Ordinance which incorporates these policies no later than November 1992.

Section 65088.1 of the Government Code and section 43845 of the Health and Safety Code require CMAs to consider and define a parking cash-out program as: an employer funded program under which an employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the employer would otherwise pay to provide the employee with a parking space. Parking subsidy means the difference between the out-of-pocket amount paid by an employer on a regular basis in order to secure the availability of an employee parking space not owned by the employer and the price, if any, charged to an employee for use of that space. Section 43845 of the Health and Safety Code further specifies that the parking cash-out programs apply to employers of 50 or more persons in air basins designated as non-attainment areas under the State's Clean Air Plan.

In addition, Regulation 13, Rule 1, adopted on December 16, 1993, by the Bay Area Air Quality Management District (BAAQMD) in response to the mandates in the California Clean Air Act (CCAA), establishes a requirement for the development of trip reduction programs for all large public and private employers, defined as those with 100 or more employees at a single work site.

Legislative Intent and Application to San Francisco

The Trip Reduction and Travel Demand Element is a key feature of the CMP legislation. No other component of the CMP, except the Capital Improvements Program, is as clearly action-oriented as the trip reduction element. While the land use analysis program or level-of-service monitoring fulfill primarily a diagnostic function, identifying potential or actual congestion problems so that solutions can be developed, the trip reduction element mandates the establishment of local policy (i.e., trip reduction ordinances) coordinated at the

subregional (county) level, explicitly aimed at curbing congestion by promoting major changes in trip-making behavior affecting both the nature of travel (as in staggered work hours), as well as the choice of travel mode (as in transit and shared rides instead of solo driving).

The requirement for local jurisdictions to consider parking cash-out programs as part of their trip reduction efforts, a 1992 addition to the original CMP legislation, aims at institutionalizing the notion of balance between the level of subsidy for different modes of transportation. Free parking at the work site, a traditional attribute of most employment opportunities (except in the urban core), is to be reconsidered. Transportation cost is redefined as a kind of employer-paid benefit, and employees can choose to use their transportation allowance to, for instance, pay for parking at the work site, pay for transit fare, or to buy into a vanpool. Charging the users the true cost of parking, it is argued, makes other options economically thinkable, and possibly even more attractive than driving alone. Issues of equity, feasibility and timing of implementation remain to be addressed, especially in suburban locations where transit service is usually not in place or must first be vastly improved before it can become a viable commute option. The City's parking policies, including a 25% tax on all off-street parking, are geared to discourage access into downtown by single occupant vehicle. Furthermore, because of the large supply of trabsportation options in downtown, employer-paid parking for employees in the exception rather than the norm. The applicability of the parking cash-out concept will need to be analyzed further, in light of these and other conditions in the downtown area. This analysis will be coordinated with ongoing trip reduction efforts. Opportunities for application of the parking cash-out concept outside of the downtown area will be explored, as well.

CITY POLICY FRAMEWORK

While San Francisco does not have an official citywide Trip Reduction Ordinance, over the last two decades the City has adopted a variety of policies designed to discourage travel by single-occupant automobile and promote other transportation alternatives. As a result the City was able to accommodate unprecedented growth in travel demand without significantly increasing investment in highway and street capacity expansion. In 1973, the City Planning Commission and the Board of Supervisors adopted a policy giving priority to transit vehicles on certain "transit streets". Over the next twenty years this action evolved into a set of strategies and policies known collectively as the City's "Transit First Policy". Transit First is San Francisco's pioneering and comprehensive response to the need for trip reduction and travel demand management. The City's Transit First Policy is documented in three different

sources: the Transportation Element of the City's General Plan; the Planning Code; and other City ordinances.

The following sections describe in detail the General Plan's objectives and policies which focus on the Transit First policy. City Planning Code and other City ordinances intended to implement this policy are also discussed. Following that, a section of this chapter discusses policies intended to reduce travel demand by addressing the balance between housing supply and employment growth. The final section examines the relationship of San Francisco's trip reduction policies to regional recommendations for Transportation Control Measures designed to achieve air quality objectives.

A. Objectives and Policies in the General Plan

The following objectives and policies of the Transportation Element of the General Plan focus on the City's policy toward a **transit oriented solution** to growth in travel demand, as well as the City's comprehensive transportation planning approach, which discourages the use of the single-occupant automobile.

Objective 1 - Policies 2 and 3: **give priority to public transit** as the means of meeting transportation needs, particularly those of commuters, and call for the coordination and linkage of regional and local transportation systems.

Objective 2 - Policies 1 and 2: call for the **development of an extensive network of regional rapid rail transit** to support a city-centered region and for the transportation system to guide the development of the City. Policy 6 under this Objective calls for incentives for the use of transit, carpools, and vanpools, and for the reduction of the need for automobile and parking facilities.

Objective 3: gives first priority to **improving transit services** and providing an efficient and convenient system throughout the City as a feasible alternative to automobile use. Policies 1 through 8 of this objective call for an **improved transit system** by establishing transit preferential streets, by providing intensified citywide transit services and low fares, by establishing transit centers, by maintaining adequate taxi services, by establishing frequent transit services to major activity centers, and by providing supplemental privately operated transit services.

Objective 4: establishes **transit as the primary mode of travel between** downtown and all major activity centers in the region. Policies 1 through 5

of this Objective call for exclusive bus lanes on freeways and bridges, for provision of transit service to downtown and other employment centers from residential and suburban areas, for making future rail transit extensions in the city compatible with BART and MUNI rail lines, and for the support of water-based passenger transportation systems.

Objective 10 - Policy 3: restricts long-term automobile parking at rapid transit stations throughout the City in favor of feeder bus services.

Objective 11 - Policy 1: limits the provision of long-term parking facilities at institutions and encourages short-term parking.

Objectives 7 and 8: call for the provision of safe pedestrian and bicycle facilities as alternatives to single-occupant automobile travel.

Objective 7 - Policies 1 through 4: call for the provision of safe and pleasant spaces for pedestrians by widening sidewalks, by creating pedestrian-only streets and by ensuring convenient and safe pedestrian crossings.

Objective 8 - Policies 1 through 6: call for an increased availability of information for bicycle commuting, for expansion and improvement of bikeways, for elimination of hazards on bikeways, for accommodation of bicycles on regional transit facilities, for bicycle safety education, and for improved bicycle traffic enforcement.

B. Existing City Ordinances

This section describes the Planning Code and other City ordinances dealing with implementation measures that support the Transit First policy, and other strategies developed by the City to discourage the use of the single-occupant automobile.

B.1. The Planning Code

a. Parking

Unlike most central cities, San Francisco has never required the provision of a minimum number of parking spaces as a condition for approval of downtown commercial development. This approach complements the City's Transit First policy. Other Policies adopted by the City also support this concept, which has been used to discourage and effectively control the growth of automobile travel in the downtown area. A comparison between 1965 and 1983 cordon counts of all vehicles entering San Francisco's greater downtown area indicates that vehicular traffic actually *decreased* slightly(about 3.7%). During that period approximately 30 million square

feet of new office space were built in the downtown area, and just between 1970 and 1980 citywide employment increased by approximately 100,000 jobs, but the number of parking spaces in downtown remained about the same. Results from the 1987 update of parking counts are consistent with this pattern.

The following paragraphs reference the Planning Code Sections that address parking policy:

Section 204.5(c) establishes that parking is allowed (though not required) in the downtown area as an accessory use. The maximum garage area for accessory parking is limited to 7% of the gross floor area of the building. Any amount above the permitted 7% requires a Conditional Use permit authorization.

Section 155(g) establishes a rate structure for parking open to the general public in the downtown area. The rate structure is intended to discourage long-term parking for all uses, with the exception of residential and hotel uses. The rate charged for four hours of parking cannot exceed four times the rate for the first hour. The rate for eight or more hours of parking cannot be less than 10 times the rate for the first hour. No discount parking is permitted for weekly, monthly or similar time-specific periods. The rate structure established under this section does not apply to stand-alone parking garages, i.e., parking that is not approved as a part of another development, although the City Planning Commission can use discretionary powers to apply the rate structure to stand-alone garages.

Section 156(h) permits new parking lots within the downtown area only as temporary uses, for a two-year period, and requires a Conditional Use permit authorization.

Section 161 eliminates parking requirements for commercial uses in dense districts which are well served by transit, including downtown, Chinatown, and Jackson Square, and reduce parking requirements in other districts based on similar criteria.

Section 223(m-p) allows parking garages as principal land uses in districts zoned C-3 (downtown commercial/office), but only by Conditional Use permit.

b. Transportation Management Programs and Transportation Brokerage Services

The purpose of these programs is to ensure that adequate measures are taken to minimize the transportation impacts caused by employment

growth at major job centers. The program is carried out by facilitating the use of transit, promoting ridesharing, and by otherwise encouraging reductions in commute travel by single-occupant automobile.

Section 163 of the Planning Code establishes a requirement for Transportation Management Programs (TMP) and Transportation Brokerage Services (TBS) for office buildings in the greater downtown area (C-3 districts) and the South of Market area. The Planning Code defines C-3 as the zoning districts in the downtown area that allow major office, retail, commercial and downtown support developments. Outside of the downtown area, these programs apply to office and commercial-industrial districts and to certain retail developments within the Mission Bay Specific Plan area. Although not categorically subject to a specific Planning Code requirement, major institutions (e.g., hospitals and universities) subject to institutional master plans can also be required to provide on-site TMP and TBS, depending on the magnitude of development and anticipated transportation impacts. These requirements are imposed when an institution requests approval of building permits pursuant to its Institutional Master Plan.

b.i. General Program Requirements.

New buildings above 100,000 square feet of gross floor area in the C-3 districts in the downtown area, and above 25,000 square feet of gross floor area in the South of Market area, are required to provide on-site TMP and TBS for the lifetime of the project. The TMP and the TBS requirements are established in the Developer's Manual, entitled "Transportation Management Programs in Greater Downtown: Developer's Manual for Procedures and Performance Criteria".

Major institutions subject to the institutional master plan procedures are encouraged to provide on-site TMP and TBS. The TMP and TBS guidelines for institutions are established in a report entitled "Transportation Management Program Reporting Requirements for Institutions".

In the Mission Bay Plan, office and commercial-industrial developments of at least 50,000 square feet are required to provide on-site TMP and TBS for the lifetime of the project, and to participate in a TMP developed and implemented for the area as a whole. Certain retail projects of at least 15,000 square feet are also required to participate in the TMP.

The TMP and TBS are designed to:

a. Promote and coordinate effective and efficient use of transit by office tenants, institutions and their employees, including the provision of transit information and on-site sale of transit passes;

b. Promote and coordinate ridesharing activities for employees at each office building and institution;

c. Reduce parking demand and ensure the proper and most efficient use of on-site or off-site parking;

d. Promote coordinated flextime or staggered work hours to more evenly distribute the arrival and departure times of employees, during peak commute periods; and

e. Participate in networks with providers of transportation brokerage services from other downtown office buildings and major institutions to promote common commute alternative objectives.

b.ii. Greater Downtown TMP and TBS Program Requirements - Mandated & Voluntary

Under the "Developer's Manual" the project owner is *required* to:

a. Designate a permanent **Transportation Management Coordinator (TMC)** to comply with reporting requirements, to develop and implement parking plans, and to provide oversight and management for the program.

For buildings with parking, the TMC is required to submit a Parking Management Plan (PMP) to be reviewed and approved by the Department of City Planning. The parking plan should allocate parking among various users such as short-term, handicapped, carpools, vanpools and bicycles. The PMP should provide a plan to market preferential on-site parking for carpools and vanpools. Issuance of long-term parking leases is limited to the employees of the building.

b. Provide permanent **Transportation Brokerage Services.** Overall program marketing, transit pass sales and promotion, ridematching, management and biennial administration of

surveys regarding employee commute behavior, are all examples of transportation brokerage functions.

Under the "Institutions' Reporting Guidelines", every affected institution is *encouraged* to provide:

a. Transportation Coordination for oversight and management of all aspects of the institution's transportation programs performed by a designated Transportation Coordinator. The Transportation Coordinator sets direction and monitors parking policies. For buildings providing parking, a Parking Management Plan (PMP) is required. The PMP should include policies ranging from the pricing of parking to the allocation of parking spaces.

b. Transportation Brokerage for day-to-day administration of the institution's TSM programs. Overall program marketing, transit pass sales and promotion, ridematching, and biennial administration of surveys regarding employee commute habits are all examples of transportation brokerage functions.

b.iii. Mission Bay TMP and TBS Requirements

Requirements for TMP and TBS in Mission Bay generally follow those established for C-3 districts in the downtown area, but with specific provisions as stated in the Specific Plan.

b.iv. Transportation Management Association (TMA)

The Transportation Management Association of San Francisco was established in 1989. The TMA is an association of building owners and managers that coordinate and facilitate implementation of the TSM programs. Presently there are about 65 buildings in the greater downtown area with TSM requirements. About 34 buildings have joined the TMA organization.

B.2. The Transit Impact Development Fee

"The Downtown Transit Impact Development Fee" ordinance was enacted in 1981. Under this ordinance, all new or converted office spaces in the downtown area are required to pay the City a $5.00 fee per square foot, to help defray the cost of providing transit services to accommodate the trips generated as a direct result of the new development over its useful life. New office development creates new work trips, which add to the already heavy utilization of the transportation system in the downtown area during peak periods. Given the lack of slack capacity at those times, the increased

ridership must be addressed through increased MUNI service frequencies. In ten years of implementation, the fee has generated approximately $71 million, which are used to partially defray these costs. Appendix 4 contains a copy of this ordinance.

B.3. Other City Ordinances and Initiatives

To improve the transit system and to encourage the use of public transit, and high occupancy vehicles, the following actions have been approved and implemented in the City:

a. Transit preferential street programs have been established to give priority to transit vehicles where conflicts with auto traffic occur, and to reduce transit delays. In addition, all-day bus-only lanes have been designated on ten streets in the downtown :

Sutter Street - Sansome to Gough
Post Street - Gough to Market
Geary Street - Kearny to Gough
O'Farrell Street - Hyde to Powell
Mission Street - Main to 4th
4th Street - Berry to King
First Street - Market to Mission
Fremont Street - Mission to Market
Stockton Street - Tunnel under Bush St. to O'Farrell
Sacramento Street - Drumm to Kearny

b. Exclusive Rights of Way have been established for cable cars on Powell Street from Market to Ellis, California to Sutter, and the northern half block from Francisco to Bay, and for streetcars on Judah Street from 9th to 19th Avenues.

c. In order to increase transit speed, parking is prohibited during peak hours on transit oriented streets with heavy traffic volumes.

d. Bus bulbs have been installed on congested streets such as Polk and Stockton Streets to improve passenger boarding, and to reduce travel time by eliminating the time needed for buses to pull into and away from the curb at bus stops.

e. Median islands have been installed for use as bus stops on Market Street, to better utilize curb space and improve transit operating efficiency.

f. Transit signal pre-emption equipment, consolidation and relocation of transit stops, and increased enforcement of parking regulations to allow buses to move more smoothly are additional measures taken by the City to improve transit system operations.

g. Residential Parking Permit programs in the neighborhoods surrounding institutions and neighborhood commercial districts serve to control and discourage all-day free parking for the employees working in those areas.

h. The Planning Commission adopted a formal policy to allocate a percentage of parking for office buildings in the downtown area to carpool and vanpool parking.

i. For purposes of priority parking, the Mission Bay Plan defines carpools and vanpools as a minimum of three persons per vehicle, compared to the two persons per vehicle generally used in the Bay Area.

j. A 25 percent tax is imposed on all off-street parking fees. This tax significantly increases the cost of parking and therefore discourages travel by single-occupant automobile.

k. With the passage of a 1/2 ¢ sales tax enacted by the City in 1989, funding for many transportation projects and programs has been assured. Sixty percent of the approximately $1 Billion generated by the sales tax over the next 20 years will be allocated to transit projects and programs, eight percent will be used for paratransit, and an additional two percent will fund TSM programs.

l. During September 1993, the City recruited a Commute Coordinator to deal with the transportation needs of the 30,000 employees of the City and County of San Francisco.

m. The Department of Parking and Traffic is currently working with Caltrans to provide further HOV lane use incentives by expanding HOV evening hours from the current 4-6 pm to 3:30 to 7 pm. This includes signage improvements, as well. Carpool drop-off areas are located on Howard St. near Folsom, and low cost ($12/yr.) vanpool parking areas exist along Folsom, Washington, Broadway and McAllister streets.

n. Parking control officers are posted at congested intersections to prevent gridlock during p.m. peak periods. The Department of Parking and Traffic also has in place an aggressive double parking prevention and enforcement program, citing and towing offending vehicles.

HOUSING AND EMPLOYMENT BALANCE

Downtown San Francisco has the largest concentration of commercial activity and employment in the Bay Region. Much of the downtown employment growth occurred in the 1970-79 period. During that time about 100,000 new jobs were created and about 11,300 net new residential units were built in the City. For each 100 new jobs created in the city about 11 net new residential units were built during this period. This attracted many new workers from the region and significantly increased the number of suburban commuters into the City.

During the 1980's the rate of downtown employment growth has decreased. At the same time, compared to the previous decade, more housing units have been built relative to the amount of employment added. This has resulted in fewer commute trips per new job created. During the 1980-1989 period about 14,100 new jobs and 12,250 net new residential units were created in the City. This works out to about 87 net new housing unit built for every 100 new jobs created during this period.

It has also been the City's policy in recent years to promote new housing in conjunction with new developments. Presently there are established housing requirements for new office buildings in the downtown area. Section 313.3 of the Planning Code, the Office/Affordable Housing Production Program (OAHPP) imposes housing requirements for buildings above 25,000 square feet of office space. Under this Section the project sponsor is required to either build housing at a rate of 38.6 units per 100,000 square feet of office, or pay $7.20 per square foot to a housing developer to construct housing, or pay an in-lieu fee to the city-wide Affordable Housing Fund. OAHPP requires 62 percent of the units to be allocated for low or moderate income housing.

Extensive rezonings undertaken in the city during 1980's have also actively promoted new residential development. The Downtown Plan, as well as the plans for Rincon Hill, North of Market, Chinatown, Neighborhood Commercial, Van Ness Avenue, and South of Market, all have measures to retain and increase residential development. The Mission Bay project alone will add 8,520 new residential units in conjunction with the commercial development.

RELATIONSHIP OF TRAVEL DEMAND MANAGEMENT ACTIVITIES TO AIR QUALITY IMPROVEMENT EFFORTS

A. Transportation Control Measures

Under the California Clean Air Act (CCAA), all regions of the State that do not attain air quality standards fall under one of the following three designations for ozone: moderate, serious, severe, or extreme; and under either of two designations for carbon monoxide: moderate or serious. Timelines for projected attainment of air quality standards are associated with each designation. The Bay Area is considered a serious non-attainment area: projections for 1997 show that the region will be unable to meet air quality standards for carbon monoxide, reactive hydrocarbons and nitrogen oxides irrespective of the strategy used. All non-attainment areas classified as severe are also required to reduce pollutant emissions by five percent per year. If this is not possible they are to implement all "feasible measures" to reduce emissions. The Bay Area also exceeds State standards for particulate matter, but is not required to meet these standards.

As required by the CCAA, in 1991 the Association of Bay Area Governments (ABAG), the Bay Area Air Quality Management District (BAAQMD) and the Metropolitan Transportation Commission (MTC), jointly prepared the Bay Area Clean Air Plan. In addition to the air quality controls proposed for the Bay Area to reduce the *amount of emissions* per vehicle for each mile driven (known as mobile source controls), there are also measures which seek to reduce the total *number of trips* and miles traveled, better known as Transportation Contol Measures (TCM's). The MTC has taken the lead in the region for development of a TCM Plan which responds to both State and Federal air quality requirements. The TCM Plan has been reviewed and revised by the BAAQMD and it is referenced in the Bay Area Clean Air Plan.

The TCM Plan has three major components:

Phase 1: Reasonably available TCMs that are based on existing authority and funding - Implementation by 1994.

Phase 2: Additional mobility, traffic operations and incentive package which requires new legislative authority and funding - Implementation by 1997.

Phase 3: Market based TCMs which also require authorizing legislation, with the exception of parking management - Implementation by 2000.

Local agencies are expected to incorporate these TCMs into planning and implementation for transportation and land use programs. The region, through the MTC, is held responsible for overall progress toward the stated goals. The CMP process provides an opportunity to integrate local planning and programming into the regional air quality planning process.

Appendix VII provides a listing of regional TCMs and discusses how San Francisco's congestion management strategies contribute to, or reinforce these measures. Among the TCMs implemented by San Francisco are parking management and pricing rules, which are considered Phase 3 measures.

B. Regulation 13, Rule 1 (BAAQMD) - San Francisco's Demonstration of Compliance

Under Rule 1 of the BAAQMD's Regulation 13, adopted in December 1992, Bay Area employers with 100 or more employees at a single work site must develop programs that encourage employees to use alternative modes of transportation, such as transit, carpooling, biking, or walking, to reduce drive-alone commuting. The Rule, which will affect approximately 4,000 work sites, and about half of all employees in the Bay Area, established average vehicle ridership (AVR) standards for the region based on the relative density of development and level of available transit service in each subregion. For San Francisco, the 1999 AVR goal was set at 2.5 commuters per private vehicle for the Northeast Quadrant, including downtown; and 1.5 for the rest of the city. In an effort to provide some flexibility to cities that have invested in transportation alternatives in the past, the BAAQMD included a provision allowing a jurisdiction to demonstrate that the 1999 AVR goals are currently met for all affected work sites within its geographic area.

In 1992 the Authority, in conjunction with the Public Utilities Commission (PUC) funded two citywide travel behavior surveys, one focused on randomly selected work sites, and the other one centered on visitor travel behavior. Both surveys were conducted by the Department of City Planning. The worktrip survey determined that, on average, San Francisco businesses already exceed the BAAQMD's standards for 1999, a finding that clearly reflects the City's commitment to transit investment over many decades. In light of the survey's results the BAAQMD determined that work sites located in San Francisco will not be subject to Rule 1 through 1995, when a new demonstration of compliance will need to be made.

Work Program Items - Key Milestones

- Coordinate data collection and survey design needs with the Department of City Planning (to ensure availability of data for travel demand analysis purposes)- Ongoing

CHAPTER 7

LAND USE ANALYSIS PROGRAM

Legislative Requirements

California Government Code section 65089 (b) (4) requires that Congestion Management Programs include a program to analyze the impacts on regional transportation systems of land use decisions made by local jurisdictions. The analysis required under this program must also include estimates of the cost of measures necessary to mitigate the transportation impacts identified.

Under the CMP law local jurisdictions retain their role in land use decision-making, as well as in determining charges to land development proponents to mitigate local transportation impacts associated with their proposals. However, Congestion Management Agencies are required to apply certain sanctions (see Chapter 12) if local agencies do not comply with the requirements of CMP law.

Legislative Intent and Application to San Francisco

The intent of the legislative requirement for a CMP-based land use analysis program is to establish a direct connection between land development decisions and proposed improvements to the regional transportation system. In principle the connection already exists at the local and regional levels. At the local level it takes the form of plans and fees for mitigation of local transportation impacts. At the regional level it is formalized in MTC's Regional Transportation Plan, which links long-range planning for transportation investment with estimates of land development based on regional demographic growth and economic development. The CMP institutionalizes this linkage at the subregional level.

The land use analysis program for San Francisco is focused on strategically assessing the cumulative impacts of land development proposals on the viability of the designated CMP network. This also includes the evaluation of impacts that cross county lines, affecting congestion management efforts by other congestion management agencies in the region. The analysis performed as part of this element informs the transportation investment recommendations in the Capital Improvements Program, and it identifies areas of the transportation network where existing deficiencies are likely to worsen or where new deficiencies are expected to materialize. This program is not intended to replace local analysis. Rather, it uses local analysis data as an input into the system-level evaluation of subregional impacts. In the same vein, the program is not intended to add a new layer of complexity to the land development review process in the city; instead, it takes advantage of information already available,

for the most part, through the local and regional analysis processes, but it analyzes it from a different perspective.

California Government Code Section 65089(b)(4) requires the land use program to assess the impacts of land development on "regional transportation systems". In the 1991 San Francisco CMP this was interpreted to mean impacts on the CMP roadway network. However, the new federal Intermodal Surface Transportation Efficiency Act (ISTEA), passed in 1991, explicitly requires the development of a metropolitan transportation system (MTS), including both transit and highways. The Metropolitan Transportation Commission has contracted with the San Francisco Transportation Authority, acting as congestion management agency to, among other activities, help develop the MTS and to use the CMP process to link land development decisions to impacts on the MTS. For purposes of the land use analysis program, the 1993 San Francisco CMP will use the San Francisco component of the MTS, but conformance with the roadway LOS standards will continue to be assessed using the CMP roadway network, which is a subset of the MTS.

Existing Setting

This section provides background on land use trends in the city. San Francisco established itself as the region's central city during the Gold Rush era. It has retained its role as the most concentrated center of employment as the region has evolved. San Francisco's peninsular location and small size, approximately 49 square miles, have forced a close relationship between the City's development patterns and its transportation network. There have been significant numbers of suburban commuters into the City for over a century. San Francisco has been able to maintain one of the highest percentages of transit use among U.S. cities because size constraints resulted in relatively high density development, and topography and geography limited access routes to and from the City.

In recent decades, an increasing amount of population and employment growth has occurred throughout the region. Back office, manufacturing, wholesale trade, warehousing, and general retail employment has grown faster in the East Bay and South Bay than in the City. However, San Francisco has remained the region's dominant employment center for middle and upper level office and administrative functions, specialty retail, and other jobs dependent upon direct transactional activities. San Francisco's daytime population is double its resident population, and about half of its 575,000 jobs are filled by suburban commuters. Transit and ridesharing currently account for about 76 percent of all commuter travel in the San Francisco downtown office district, which contrasts with 11 percent transit use for the entire Bay Area region.

During the 1980's, San Francisco actively promoted new residential development. Extensive revisions to the City's Master Plan and rezonings were undertaken. Each of these land use plans - the Downtown Plan, Rincon Hill, North of Market, Chinatown, Neighborhood Commercial, Van Ness Avenue, South of Market, and Mission Bay -incorporated measures to retain and enhance opportunities for residential development. In addition, housing development has been promoted by the policies of the San Francisco Redevelopment Agency in the Rincon Point/South Beach, Yerba Buena Center, and the Western Addition Redevelopment Plan Areas. Together, these policies have resulted in a net gain of over 8,500 housing units since 1985, which represents about a seventy percent annual increase in housing production compared to the previous fifteen years. In a regional context, San Francisco ranked fourth among Bay Area cities, behind San Jose, Fremont, and Santa Rosa, in the amount of new housing built since 1980.

Institutional Framework

This section describes the institutional parameters that frame the City's process for reviewing land development impacts on the transportation network. San Francisco is a Charter City and has a consolidated city and county government. An eleven-member Board of Supervisors serves as the legislative body for the City's unified city and county government. The City Planning Commission (CPC) has responsibility for land use decision-making throughout the City. Five of the seven members of the CPC are appointed by the Mayor. In addition, there is a representative from the local Public Utilities Commission and the Chief Administrative Officer. Among the responsibilities of the CPC are the following:

- Exclusive authority to act on General Plan policies and area land use plans (per City Charter);

- Holding public hearings on all appeals to Negative Declaration determinations and certification of all local Environmental Impact Reports;

- Discretionary development decisions under the City Planning Code (e.g., Use cases, which can be appealed to the Board of Supervisors under certain circumstances) and under the City Charter (e.g., Discretionary Review of building permit applications).

In addition, all subdivisions of five or more lots and all rezonings must be approved by both the CPC and the Board of Supervisors.

City departments involved in transportation activities are: the Department of City Planning (Transportation Section), which has primary responsibility for assessment of the transportation impacts of development proposals, to determine consistency with land use and transportation policies in the General Plan, and for coordination with other City departments which provide transportation services; the Municipal Railway, which operates an extensive streetcar, cable car, trolley coach, and diesel bus transit network within San Francisco; the Department of Parking and Traffic, which was created in July 1990 to manage City off-street and on-street parking, parking enforcement, and traffic engineering activities consistent with the City's Transit First policies; and the Department of Public Works, which has retained responsibility for street cleaning, maintenance, repair, and contract management affecting streets and infrastructure. Each of these departments are integral parts of the City's governmental structure, and all ultimately report to the Mayor and the Board of Supervisors. Other entities influencing transportation and land use in the city are the Redevelopment Agency, and the Chief Administrator's Office, which is currently coordinating the construction of waterfront projects, including the new Embarcadero Roadway, the MUNI Metro Turnback, and the Terminal Separator Structure.

The San Francisco County Transportation Authority was established as an independent agency to administer Proposition B, the funding program generated from passage of a new one-half cent sales tax for transit, roadway, bicycle and pedestrian projects. All members of the San Francisco Board of Supervisors serve on the Authority Board of Commissioners. The Authority has also been designated as the local Congestion Management Agency (CMA) for San Francisco. Pursuant to this designation, the Authority has certain duties and responsibilities to ensure that the city complies with state-mandated CMP requirements. Such responsibilities include, among others, the development of a methodology for land use impacts, and the creation of a uniform database for land use impacts analysis. For a detailed discussion of the roles and responsibilities of the Authority, please refer to Chapter 2.

Land Use and Transportation Analysis

a. Current Practice

The transportation implications of proposed development and of prospective land use changes are currently assessed within the framework of the California Environmental Quality Act (CEQA). The Office of Environmental Review (OER) within the Department of City Planning serves as the City's lead and responsible agency for conducting environmental assessments. Determination of transportation impacts associated with land use changes is an integral part of the environmental

review process. Transportation impact analyses are mandated not only based on traffic increases which exceed specified thresholds but also are necessary whenever transit operations, pedestrian facilities, or loading needs may be adversely affected. Exacting published guidelines (Appendix V) detail a consistent methodology in the assessment of land use effects on the entire transportation system. It is a well-established procedure in the local approval process to require project sponsors to finance the mitigation of localized and areawide impacts expected to be generated by their projects. A Transit Impact Development Fee of five dollars per net new gross square feet for downtown office space is mandatory to offset the increased marginal costs for provision of additional peak period transit service. Mitigation by developers helps to defray the costs of public improvements needed as a result of land use decisions.

Long-range development potential and associated cumulative transportation impacts have been assessed in conjunction with land use plans and rezonings for many areas of the City. Models have been developed for the Downtown Plan, South of Market, and Mission Bay EIR's to provide a comprehensive framework for the analysis of the effects of land use changes upon the transportation system of the greater downtown area. Sub-area modeling has also been used in conjunction with land use rezonings for Chinatown and Van Ness Avenue. Potential transportation impacts generated by new development proposals are assessed within the cumulative framework for each sub-area which has been modeled.

b. Comparison of Local and CMP Impact Analysis Levels

The emphasis of the CMP land use impacts analysis program is on addressing system-level impacts typically not discussed in depth as part of the local impacts analysis process. As described above, San Francisco has made considerable efforts in developing a comprehensive framework for transportation impacts analysis, particularly because of the scale and pace of development experienced over the last three decades. However, further effort will be necessary to adapt the City's analysis process to the requirements of CMP law. For example, no citywide model which integrates land use with the entire transportation network currently exists for San Francisco. The current land use impacts analysis method therefore cannot accurately assign impacts associated with San Francisco development to the regional transportation network beyond a certain distance from the proposed development, and generally not beyond the city's boundaries. Similarly, while there is considerable fragmentary evidence that through traffic increasingly contributes to congestion, it is not currently possible to identify the magnitude of the effects of development

elsewhere in the region upon San Francisco. The City does have access to travel demand forecast data produced with the computerized regional travel demand model developed by the Metropolitan Transportation Commission, but the data is of limited use. For a discussion of currently available travel demand forecasting models and their applicability to San Francisco's needs, please refer to Chapter 10.

c. **CMP Land Use Impacts Analysis - Methodology Development**

To ensure compliance with state and federal mandates regarding congestion management, the Authority must develop and adopt a methodology for analysis of impacts of land use decisions on the regional transportation network. As stated above, this method should be a refinement of the current process used by the city, and it should build as far as possible on existing resources and data. It is important to emphasize that this methodology must be developed to satisfy CMP analysis requirements only. It is expected that the City will give due consideration to the results of CMP-generated analyses of transportation impacts, however, as established in state law, the City retains its full jurisdiction over the land development approval process.

During the rest of fiscal year 1993-4 the Authority will work, in coordination with city departments, to develop and adopt the land use analysis methodology and guidelines to be followed for CMP-related analysis, including any needed modifications to the current land use analysis process. The range of possible options for these modifications is closely linked to the decisions regarding development of a travel demand methodology and database to permit forecasting of transportation impacts given different land use assumptions. For a description of the issues and process for developing a travel demand methodology, please refer to Chapter 10.

The methodology development process for land use analysis impacts will focus on the following key areas:

- determination of the appropriate level and thresholds for analysis, including types of land use proposals to be addressed as part of the CMP process (i.e., project scale, general plan amendments, redevelopment initiatives, etc.)

- determination of the desired frequency of CMP cumulative impacts analysis;

- determination of target years for analysis;

- criteria for assumptions about improvements to the transportation network (coordination with the Capital Improvements Program and other programming and funding mechanisms and timetables);

- scoping of data needs for CMP-level analysis, including database update frequency and contents (closely coordinated with the development of the travel demand methodology);

- modifications to the existing data collection process to satisfy CMP-related needs; and

- use of impact analysis results and land use data for the development of Strategic Analysis Reports.

d. Timetable for Implementation and Interim Approach

It is proposed that the new methodology and guidelines for land use impacts analysis be finalized by November 1994, and adopted by the Authority Board by February 1995. Until then the current local land use analysis process (see Appendix V) will be used as the interim land use analysis approach for CMP purposes.

Implications of CMP Requirements

CMP requirements are not expected to change the existing governmental structure for land use decision-making. San Francisco's unified city-county government has already consolidated power at the county level and resolved questions of jurisdictional authority which the CMP process raises in most other counties in the state. The institutional roles of the City Planning Commission and Board of Supervisors remain unaffected.

Annual determinations of conformance with the San Francisco CMP will be made by the Authority at the countywide level. Each City department with specific transportation planning and operational responsibilities will retain its current roles. The Authority will play a central role in developing closer coordination among the departments and in integrating transportation and land use functions as part of the CMP process.

Work Program Items - Key Milestones

- Develop Draft Land Use Analysis Guidelines - By November 1994
- Finalize Land Use Analysis Guidelines - By February 1995

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CHAPTER 8

CAPITAL IMPROVEMENT PROGRAM (CIP)

Legislative Requirements

California Government Code 65089(b)(5) requires that the CMP contain a seven-year Capital Improvement Program (CIP), developed by the CMA, to maintain or improve the traffic LOS and transit performance standards established in the CMP, and to address impacts on the regional network, as identified through the land use impact analysis program. Capital improvement projects must conform to air quality mitigation measures for transportation-related vehicle emissions, as detailed in the Bay Area Air Quality Management District's 1991 Clean Air Plan.

Legislative Intent and Application to San Francisco

The CMP legislation was formulated around a relatively simple concept: future transportation needs would be estimated through the land use analysis program, curbed to some degree through actions in the trip reduction element, and otherwise addressed through a fund programming mechanism to supply new transportation projects and services. That mechanism is the Capital Improvements Program (CIP), which ensures the steady supply of transportation improvements needed to at the same time accommodate land development and prevent congestion from worsening. The legislation defines the CIP as a seven-year program. This makes it into a medium-range programming tool, clearly not intended to replace long-range plans, but rather to provide a vehicle for implementation of improvements consistent with long-range policies.

The CIP is intended to address future problems anticipated through land use impacts analysis, rather than to react to problems already observed. The provision for deficiency plans (see Chapter 9) supports the notion that the CIP is meant to anticipate problems: deficiency plans are allowed only in cases where the CIP could not keep up with the growth of congestion in a roadway facility, and it is no longer feasible (physically or financially) to fix the problem in that facility, so improvements on other facilities are required instead. The exemption from monitoring of all facility segments found to be operating at LOS F during the initial monitoring (1991) also supports the notion of a forward-looking CIP. Relatively long lead times are usually necessary to fund and implement transportation projects, whether they involve construction or not. This makes effective CIP programming somewhat challenging unless it is construed as anticipatory of the need.

The emphasis of CMP legislation is on expeditious delivery of transportation where needed. The CIP must ensure that improvements will be on the ground when needed, in order to prevent worsening of congestion. However, because of peculiarities of the funding process, CIP projects get programmed in the outer two years of each seven-year CMP. This makes it difficult for the CIP to immediately address newly identified needs. In order to achieve a more realistic assessment of its congestion management effectiveness, it will be necessary to look at the CIP as a transportation project delivery mechanism, not just as a programming tool. The legislation does not provide guidance as to whether the 7-year period alluded to in the context of the CIP is a programming period or a project delivery period. It is clear, however, that any evaluation of the potential effectiveness of the CIP must be based on the anticipated timelines for actual delivery of the services. The methodology for land use impacts analysis, to be developed during fiscal year 1993-4, will address in detail the issue of project delivery assumptions and target years, but legislative change will likely be required in order to make the CIP into a more effective vehicle for implementation of the CMP.

Relationship to the Proposition B Strategic Plan and Other City Plans

The CMP's Capital Improvements Program is intended as a medium-range programming tool. The Strategic Plan, together with its related documents, such as the rail master plan, can provide the overall framework for strategic programming of CMP improvements.

Coordination between the CMP and the updates of various other planning documents such as the Transportation Element of the City General Plan, transit operators Short Range Transit Plans, and the 5-year departmental plans for Proposition B funds, will enhance the effectiveness of the CIP as a strategic programming tool, and contribute to the overall success of the CMP. Coordination is indispensable because inclusion in the CMP's Capital Improvements Program is now the key to State/Federal funding eligibility for transportation projects. The CIP is therefore the primary vehicle to fund implementation of transportation policies contained in the City's General Plan.

Coordination with the Authority's Strategic Plan, which provides local matching funds for a majority of San Francisco's transportation projects, is one of the key factors in determining which projects are incorporated into the CIP. This ensures that CIP projects will be financially viable, and it reinforces and supports the funding policy choices made as part of the Strategic Plan. Because of the lack of travel demand model in the city, the choices of investments in the CIP are driven by

- the City's transit first policy
- the need to address the 91 Clean Air Plan for the Bay Area.
- funding guidelines and criteria under the state's Flexible Congestion Relief program and under the federal (ISTEA) programs.

In addition, 5-year plans are being prepared by City departments to address investments in roadways, bicycle facilities, traffic signals, transit preferential streets, and trip reduction programs. These plans, required by the Authority to inform the prioritization of Proposition B funds, will be also be considered in the next CIP.

Tradeoffs between transit projects are based only partially on a comparison of effectiveness, and more directly on an evaluation of their overall viability (financial, operating capacity)

Program Overview

The following tables list improvements for the seven-year period covered by the 1993 San Francisco CMP. Table 9-A details San Francisco transit and roadway improvements programmed as part of the 1993 (Federal) Transportation Improvement Program (TIP) for the Bay Area (MTC, September 23, 1992), including Surface Transportation Program (STP), and Congestion Mitigation and Air Quality Program (CMAQ). San Francisco's program is truly multi-modal. Of a total of $27 million included in the 1993 TIP, about $22 million were programmed for transit and pedestrian projects, and about $5 million to roadways. (For detailed information on these projects refer to Volume I - Transit Element of the 1993 TIP, Pages I - 6 - 50 through 63, and Volume II - Highway Element of the 1993 TIP, Pages II - 3 - 269 through 329.)

Table 9-B shows projects recommended for funding for the 1994 State Transportation Improvements Program (STIP) and 1995 (Federal) Transportation Improvement Program. Of a total of $40 million recommended for programming, $33 million is for transit, bicycle and pedestrian projects, and about $7 million for roadways. It should be noted that the 1991 and 1993 CMPs have programmed about $6.6 million to improve freight access to the port of San Francisco, thus lessening the impacts of truck traffic on the CMP network

Table 9-C shows $577,000 for projects funded under the AB 434 (Vehicle Registration Fee) program. These funds are devoted to projects that improve air quality. The 1993 list includes a significant commitment to projects involving use of alternative fuels.

TABLE 9-A

1992 STIP and 1993 TIP

STP/CMAQ/FCR

SAN FRANCISCO PROGRAMMED FUNDS

All costs in $1000s

SPONSOR	PROJECT	PASS SCREEN?	TOTAL COST	ISTEA COST	TSM MATCH	OTHER/ LOCAL MATCH	YEAR (ESC)	PS&E DATE	PROJECT TYPE	PROGRAM
CMA	ISETA Planning & Programming Activities	Y	$431.60	$382.00	$0.00	$49.60	1992	Sep-92	PLAN	STP
DPT	Bayshore Blvd/101 Offramp	Y	$250.00	$200.00	$0.00	$50.00	1992	Jun-93	IC	STP GUAR
DPT	Army St. widening	Y	$600.00	$500.00	$0.00	$100.00	1992	Jul-93	ART	STP GUAR
DPT	New Signal: Alemany/Mt. Vernon	Y	$110.00	$80.00	$12.70	$17.40	1992	Jan-93	SIGN	STP
DPT	New Signal: Clay/Powell	Y	$100.00	$80.00	$11.50	$8.50	1992	Jan-93	SIGN	STP
DPT	New Signal: West Portal/Vicente	Y	$80.00	$64.00	$9.20	$6.80	1992	Jan-93	SIGN	STP
DPT	New Signal: Divisadero/Page	Y	$144.00	$120.00	$16.60	$7.40	1992	Oct-92	TOS	STP
DPT	Traffic Video Surveillance Demo	Y	$100.00	$64.00	$0.00	$36.00	1992	Jan-93	SIGN	CMAQ
DPW	Street Resurfacing Program	Y	$6,781.00	$2,600.00	$0.00	$4,181.00	1992	Jul-92	PAVE	STP GUAR
DPW	Curp ramps/cuts	Y	$1,300.00	$1,000.00	$149.50	$150.50	1992	Jul-92	PED	STP
MUNI	Metro Turnback	Y	$211,758.00	$3,400.00	$0.00	$208,358.00	1992	Dec-93	TRAN	STP GUAR
MUNI	Metro Turnback	Y	$211,758.00	$5,400.00	$0.00	$206,358.00	1992	Dec-93	TRAN	CMAQ
MUNI/PORT	Metro East/Illinois Street Bridge	Y	$87,198.80	$13,300.00	$1,728.20	$72,170.60	1992	Apr-94	TRAN	STP
	TOTAL SAN FRANCISCO		$520,611.40	$27,190.00	$1,927.70	$491,493.80				

Source: 1991 TIP - Metropolitan Transportation Commission

Table 9-B

1994 STIP and 1995 TIP

STP/CMAQ/FCR

1993 SAN FRANCISCO PROGRAMMING REQUESTS

PROJECT CATEGORY/NAME	TYPE	SPONSOR	Request In $,000(1)	PROPOSED FUNDING STPG (2)	STP (3)	CMAQ (4)	FCR (5)	TOTAL
Trolley coach replacement	Transit	MUNI	$4,800	$0	$4,800	$0	$0	$4,800
Replacement LRVs	Transit	MUNI	$23,150	$0	$3,271	$4,514	$0	$7,785
Doyle Drive reconstruction (ROW)	Roadway/Ped	CalTrans	$3,000	$0	$1,830	$0	$0	$1,830
A&B rail car rehabilitation	Transit	BART	$76,518	$0	$0	$4,500	$0	$4,500
Downtown sidewalk widening	Roadway/Ped	DPW	$1,357	$0	$1,357	$0	$0	$1,357
Track replacement	Transit	MUNI	$1,770	$0	$1,770	$0	$0	$1,770
Bus stop improvements	Transit	MUNI	$838	$0	$0	$838	$0	$838
Valencia St. bikeway	Traffic/Bikeway	DPT	$330	$0	$0	$0	$0	$0
ETV signal pre-emption	Transit	MUNI	$1,181	$0	$426	$755	$0	$1,181
Motor coach signal pre-emption	Transit	MUNI	$478	$0	$0	$478	$0	$478
Transfer point improv (Phase I)	Transit	GGT	$300	$0	$55	$0	$0	$55
Lincoln Way signal interconnect	Traffic/Bikeway	DPT	$350	$0	$0	$350	$0	$350
Emergency vehicle signal preempt	Traffic/Bikeway	DPT	$3,712	$0	$0	$1,000	$0	$1,000
Trolley overhead rehab	Transit	MUNI	$1,416	$458	$418	$540	$0	$1,416
Key ADA Stations	Transit	MUNI	$2,810	$0	$2,810	$0	$0	$2,810
Translink	Transit	GGT	$3,000	$0	$0	$218	$0	$218
Caltrain locomotive rebuild (prototype)	Transit	JPB	$320	$0	$35	$0	$0	$35
Railcar rehabilitation	Transit	JPB	$435	$0	$45	$0	$0	$45
TOS/101 County line to I-280)	Traffic/Bikeway	CalTrans	$465	$0	$0	$465	$0	$465
TOS/280 (County line to 101)	Traffic/Bikeway	CalTrans	$640	$0	$0	$640	$0	$640
Sidewalk improvements	Roadway/Ped	DPW	$1,150	$0	$373	$0	$0	$373
Ferry terminal upgrade, Phase III	Transit	Port	$5,775	$0	$0	$0	$0	$0
LRV boarding islands	Transit	MUNI	$2,265	$0	$0	$0	$0	$0
Gauntlet track/tunnels 3&4	Transit	Port	$1,179	$1,179	$0	$0	$0	$1,179
Curb ramp reconstruction	Roadway/Ped	DPW	$5,200	$1,317	$0	$0	$0	$1,317
Bayshore Blvd./101 weaving ramp	Traffic/Bikeway	DPT	$700	$700	$0	$0	$0	$700
Key station ADA improvements	Transit	JPB	$5,080	$550	$0	$0	$0	$550
Lake Merced bikeway	Traffic/Bikeway	DPT	$370	$370	$0	$0	$0	$370
Downtown pedestrian alleys	Roadway/Ped	DPW	$287	$287	$0	$0	$0	$287
Street resurfacing	Roadway/Ped	DPW	$8,000	$4,000	$0	$0	$0	$4,000
10 expansion buses	Transit	GGT	$3,533	$0	$0	$0	$0	$0
Monterey Blvd. reconstruct	Traffic/Bikeway	DPT	$140	$140	$0	$0	$0	$140
Automated scheduling/ops. system	Transit	GGT	$353	$20	$0	$0	$0	$20
Bus stop improvements	Transit	GGT	$200	$0	$0	$0	$0	$0
		TOTAL	$181,500	$9,001	$16,990	$14,294	$0	$40,285
								$40,285

(1) Figures only reflect the amounts requested from STP/CMAQ and FCR. Total project cost may be higher.

(2) Zero FCR funds statewide are the result of a CTC decision.

(3) BART A/B Car funds subject to MTC support and BART provision of local share.

Table 8-C

1993 San Francisco
AB 434 Programming Recommendations

Program/Project	Funds Requested
Compressed Natural Gas Fueling Facility	$493,000
Compressed Nat.Gas Enforcement Vehicle	$ 20,000
Parking Enforcement Patrol on Bicycles	$ 20,000
S.F. General Hospital Ridematching Service	$ 20,000
SCTCA	$ 24,000
TOTAL	$577,000

Transit Program

The current (1993) CMP prioritized transit projects worth $27 million to be added to the last two years (FY 1999-2000 and 2000-2001) of the current seven-year program. A large share of the proposed $27 million is devoted to replacement of MUNI Metro light rail vehicles and trolleybuses and to improvements to key Metro stations to comply with the accessibility requirements of the Americans with Disabilities Act (ADA). Other projects include streetcar track replacement, installation of signal traffic signal preemption devices along diesel coach and trolleybus routes, and replacement of trolleybus overhead wires.

The entire seven-year (1994-2001) capital improvement program for transit, which includes funds programmed prior to the 1993 CMP, is estimated to cost about $1.3 billion. Major projects include replacement of the MUNI Metro light rail and trolleybus fleets, construction of new bus maintenance facilities, construction of the MUNI Metro Turnback project to improve operation of the downtown terminal of MUNI's Market Street subway, and new light rail service extensions on the Embarcadero to Fisherman's Wharf to the north, and to 6th Street to the south. Funding for this capital program is dependent on many sources, most importantly Federal funds (57%), State funds (21%) and local transportation sales tax (17%). The remainder of needed funds are programmed

from local and regional sources, such as bridge tolls, transit impact development fees, and the regional allocations of TDA and STA funds. Between 1991 and 2001 the City is programming a total of $174 million in Proposition 108 funds and $35 million in Proposition 116 funds for transit projects.

Roadway Program

The 1993 CMP proposes $7.4 million in roadway projects. No capacity-increasing projects are included. All roadway projects proposed involve rehabilitation and maintenance of existing facilities. Almost half of the proposed amount is devoted to street resurfacing. Other projects include installation of Traffic Operations System (TOS) devices on US 101 and I-280, preservation of right-of-way for the reconstruction of Doyle Drive, and safety improvements on US 101 at the Army Street northbound off-ramp.

The complete seven-year roadway investment program (including projects already programmed before the 1993 CMP), features two main projects: the Embarcadero Roadway, and the Army Street widening project. The Embarcadero Roadway project involves the reconstruction of the existing surface roadway along the Embarcadero, from North Point Street to Broadway, and from Folsom to Sixth and King Streets. The mid-section of the Embarcadero Roadway project, between Broadway and Folsom, is undergoing redesign and environmental analysis due to the demolition of the Embarcadero Freeway. The project is not expected to generate additional vehicular traffic; instead, it is designed to better accommodate transit, pedestrians and bicyclists, increasing its total people-carrying capacity. The improvements will provide better local street access to the Embarcadero and improve the operating conditions for left-turning traffic at most intersections. By widening lanes and easing the curvature of freeway ramps, the Army Street project provides improved vehicular (particularly truck) accessibility between the Port of San Francisco, the India Basin Industrial Park, the Hunter's Point Naval Shipyard area, and both freeways (US Route 101 and I-280). The project will obviate the need for construction of a new freeway interchange at Islais Creek.

Waterborne Program

The 1993 CMP makes no additions to the investments already proposed in the 1991 CMP, which are described below.

This section of the program contains an important North Commuter Ferry Terminal Upgrade project. This project will be accomplished in two phases. The first will install a ferry barge, trestle and gangway off Pier 1/2, immediately north of the Ferry Building. In addition, this project includes installation of benches, lighting, and signage for passenger waiting areas. Funding for Phase I

of the project will come from an Emergency Relief grant from the Federal Highway Administration and Caltrans, at the recommendation of the Cypress Corridor Citizen Advisory Council (to reduce traffic congestion in the East Bay due to the collapse of the Cypress Freeway structure). Local transportation sales tax and bridge toll funds are also programmed.

The second phase of the project uses Proposition 116 funds. These funds will be used for seismic upgrading of Pier 1/2, purchase and installation of second, publicly accessible barge, gangway and trestle, and the construction of a passenger terminal. Improvement and expansion of the terminal facilities will allow for more flexibility in scheduling, increased safety for passengers, and increased access to San Francisco. Terminal improvements will allow for expanded ferry service, decreasing the number of Bay bridge trips, and contributing to the achievement of regional air quality goals.

Bicycle and Pedestrian Program

The 1993 CMP proposes about $3.7 million in bicycle and pedestrian facilities. These include funds for the Lake Merced Bikeway, as well as downtown pedestrian alleys and sidewalk widenings.

The bicycle program is intended to implement projects that facilitate commuting by bicycle. A main feature of the program involves the restriping of wide right lanes on bicycle commute streets to provide a higher margin of safety for bicycle users. All streets proposed for restriping are included as Commute Bike Routes in the Transportation Element of the City's General Plan.

The City has received funding for the bicycle program out of several sources, including $263,000 from the first cycle of Proposition 116 funds, to be used for curb lane widenings. In addition the second cycle of Proposition 116 has provided $285,000 for the Valencia Street Bikeway and $85,000 for installation of bicycle commute route signs. The City is matching these grants with TDA Article 3 funds. In addition the Authority is providing $200,000 to fund the development of a comprehensive Bicycle Plan and a Spot Improvements program. Other funds for bicycle projects include about $60,000 in AB 434 funds for bicycle lockers, about $20,000 in TDA funds for a bicycle safety program, and about $30,000 in TDA funds for a bicycle retrofit of the Caltrain. Recently the Department of Parking and Traffic retained a full-time bicycle coordinator for the City.

Freight Program

The 1993 CMP proposes $1.179 million to complete funding for the Port's "gauntlet" track project in tunnels 3 and 4. By installing a third track,

straddling the existing two, this project will take advantage of the maximum vertical clearance in the existing tunnels. This will allow double-stack container trains to reach the Port's container terminals in India Basin without the need for expensive structural modifications to the existing tunnels. Additional benefits of the project include improved signalization in the tunnels, which will improve operations of the Caltrain passenger commute service, and diversion of freight traffic from already overburdened roadway facilities, including US 101 and major arterials. Funds for this $11 million project were also programmed in the 1991 CMP.

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CHAPTER 9

DEFICIENCY PLANS

Legislative Requirements

The provision for deficiency plans is intended to work in conjunction with the requirement for annual monitoring of levels of service (LOS) on the designated CMP roadway network. In order to make its annual finding of conformance with the CMP, the Congestion Management Agency (CMA) must first ascertain that the LOS standard is not being violated. If, however, the results of monitoring on a CMP roadway segment show that LOS has fallen below the established standard, the CMA can still make a finding of conformance with the CMP if the local jurisdiction designates the roadway segment as deficient and develops a deficiency plan for it.

California Government Code section 65098.3 (b)(1) states that a city or county may designate individual deficient segments or intersections which do not meet the established LOS standards if, prior to the designation, at a noticed public hearing, the city or county has developed and adopted a deficiency plan. Deficiency plans must contain the following components: 1) an analysis of the causes of the deficiency, 2) a list of improvements that would have to be made to prevent the deficiency from occurring, including cost estimates, 3) a list of improvements proposed as part of the deficiency plan, and finally 4) an action plan for implementation of the improvements identified as part of the deficiency plan, including an implementation schedule. The improvements proposed must be drawn from an inventory of acceptable actions compiled by the air quality management district. The deficiency plan must "measurably improve" the overall LOS on the designated CMP roadway network, and "contribute to significant improvements in air quality". The statutes also require that the city or county forward the deficiency plan to the Congestion Management Agency, which must hold a public hearing within 60 days of receipt of the deficiency plan, and either accept or reject it, but not modify it. Rejection of a deficiency plan by the Congestion Management Agency will result in a finding of non-conformance with the CMP.

Legislative Intent and Application to San Francisco

Deficiency plans were not included among the provisions of the originally proposed congestion management legislation . They were added through the legislative process to allow continued land development even in situations where the LOS on certain segments of the CMP roadway network deteriorated below the established LOS standard.

In order to make deficiency plans effective for San Francisco, they should be

- **forward looking:** anticipating the deficiency wherever possible, rather than reacting to the worsening of congestion conditions

- **effective:** linked to some evaluation method or periodic monitoring of their efficacy, and designed to address congestion at a scale commensurate with the magnitude of the problem; and

- **infrequent:** used only to address contingencies, i.e., truly unforeseen events, rather than to replace medium or long-range planning, or to circumvent CMP programming that occurs through the Capital Improvements Program.

There is a close connection between projects proposed as part of the CMP's Capital Improvements Program and actions included in deficiency plans. Because deficiency plan actions must be taken from the list developed by the Air Quality Management District, which de-emphasizes roadway-based solutions, deficiency plans are likely to include mostly transit or travel demand management (TDM) types of measures.

In San Francisco the majority of transportation funds in the CIP are devoted to improvements in transit service. Deficiency plan measures are also likely to be strongly transit-oriented and, thanks to the densely built-up urban setting, also have the potential to provide measurable benefits for congestion management purposes. Conceivably, many of San Francisco's congestion management actions could be transit-based improvements implemented as part of deficiency plans developed *after* deficiencies are detected. Such an approach, however, almost certainly ensures that the result will be subotimal. Instead, San Francisco's congestion management program is designed to be forward-looking and systematic in its treatment of current and anticipated congestion problems on the CMP network. This can be achieved, as intended in the legislation, through effective coordination of land use impacts analysis activities with decisions regarding prioritization of improvements proposed as part of the Capital Improvements Program. In addition, the Authority's Strategic Analysis Report (SARs) will be used as a vehicle for identifying anticipated deficiencies. Actions (particularly transit and other operational improvements) identified as part of deficiency plans will be consistent with the general funding policy direction in the Capital Improvements Program. In some cases, for example, deficiency plan actions will have the effect of accelerating the pace of implementation of improvements already identified in the CIP. In those cases, the deficiency will

be evaluated as a temporary phenomenon, expected to be addressed by implementation of a CIP action. The deficiency plan process will be structured to ensure maximum coordination with CIP priorities.

Methodology Development

Detailed guidelines for the identification of deficiencies and preparation of deficiency plans will be developed during fiscal year 1993-4. Several aspects of the deficiency plan development methodology are closely tied to the choice of a travel demand forecasting method for CMP analysis purposes (see Chapter 10). The kind of travel demand forecasting tools ultimately developed for CMP analysis in the city will determine to a large extent our ability to analyze the effectiveness of proposed deficiency plan actions, and their relationship to other components of the Congestion Management Program, including Trip Reduction, Land Use Impacts Analysis, and the Capital Improvements Program.

Development of deficiency plan procedures will emphasize maximum utilization of current mechanisms for assessment of development impact mitigation measures. The Authority will work with the Department of City Planning on this topic. However, there are differences between the mitigation assessment process associated with development proposals and the deficiency plan process. Pursuant to state law, deficiencies on the CMP network must be addressed by the City, regardless of whether they can be linked to a specific development or not. The Authority will therefore seek input from implementing Departments, particularly MUNI, the Department of Parking and Traffic, and the Department of Public Works, to ensure that the guidelines result in a process that leads to expeditious implementation of deficiency plan actions.

The development of the guidelines will include consideration of the following as well as other issues:

- Current Practice: review of procedures already in place for mitigation of transportation impacts, and development of a process to involve implementing City Departments not typically involved in development impact assessment.
- Approach to Determination of Deficiency: address issues of actual measurement versus estimation of future deficiency status. Consider continuation of two-step deficiency identification process (see Interim Approach, below).
- Relationship to Demand Estimation Methods: identify opportunities and limitations posed by available demand estimation methods, to evaluate effectiveness of proposed actions. (This will be undertaken in

coordination with the development of a travel demand forecasting methodology.)

- Relationship to the CIP: address issues of coordination with proposed CIP investments and timing of implementation. (see Chapter 8)
- Identification of Target Years: identify target years necessary to standardize the analysis of effectiveness of deficiency plan actions.
- Approach to Multi-county Deficiencies: in consultation with MTC and neighboring counties, outline a proposed process to address deficiencies that cross county lines.
- Corridor Analysis and Areawide Deficiency Plan Concepts: explore the possibility of establishing corridor performance measurement methods that allow evaluation of mobility improvements based on the combined performance of parallel facilities, including all transportation modes, and using a multi-agency approach to implementation.
- Coordination with Strategic Analysis Reports: possible use of SARs to identify potential deficiency plan actions and their likely contribution to congestion abatement..
- Approach to Environmental Review of Deficiency Plan Actions: develop a process to gauge the need for environmental evaluation of deficiency actions, particularly for actions involving multiple facilities or covering large areas.
- Deficiency Plan Implementation and Performance Monitoring Process: the guidelines must include a process for monitoring the pace of implementation and the performance of adopted deficiency plan actions.

Deficiency Plan guidelines will be developed and adopted by the Authority by April 1994, with input from City Departments. The guidelines will provide detailed direction about the required contents of deficiency plan documents, as well as establish timelines for submittal and approval, and standards for evaluation of the mitigation measures proposed. The guidelines will also be fully coordinated with Bay Area Air Quality Management District requirements and incorporate all pertinent guidance contained in the Deficiency Plan Action List adopted by the District in 1992.

Interim Approach

A two-step interim process is proposed for deficiency determination. Any segment identified as potentially deficient (i.e., operating at LOS F) during the July-August 1993 annual monitoring (see Chapter 4), will be monitored again every two months until March 1994 to corroborate the designation as deficient. For any segments still found to be operating at LOS F at that time, the Authority will require the City to prepare Deficiency Plans in accordance with adopted guidelines and procedures, and within specified timelines. As a general

rule, deficiency plan actions will be expected to be commensurate with the scale of the deficiency. In order to ensure the acceptability of any deficiency plans prepared pursuant to the Authority's findings, Authority staff will work closely with City Departments, acting as a resource to provide interim evaluation and comment on proposed deficiency plan actions. However, in order to preserve the Authority's ability to objectively evaluate CMP conformance, preparation of the deficiency plan reports will remain the responsibility of the City through its departments.

Work Program Items - Key Milestones

- Develop Draft Deficiency Plan guidelines - By December1994.
- Develop and Adopt Final Deficiency Plan Guidelines - By March 1995.
- Issue final determination of deficiency on LOS F segments and notify City departments - By April 1994.
- Provide review and comments to City departments preparing Deficiency Plans. - After April 1994, as required.
- Review and approve final Deficiency Plans submitted by City departments - After April 1994, as required.
- Monitor Deficiency Plan implementation - After April 1994, as required.

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CHAPTER 10

TRAVEL DEMAND MODEL AND UNIFORM DATABASE

Legislative Requirements

California Government Code section 65089 (c) requires that each Congestion Management Agency, in consultation with the regional transportation planning agency (MTC in the Bay Area), the county, and local jurisdictions, develop for a uniform database on traffic impacts for use in a countywide transportation computer model. The CMA must approve computer models used for county sub-areas, including models used by local jurisdictions for land use impact analysis. All models must be consistent with the modeling methodology and databases used by the regional transportation planning agency.

Legislative Intent and Application to San Francisco

One of the most significant issues contributing to the enactment of congestion management legislation is the difficulty of determining responsibility for transportation system impacts when they result from land use decisions taken by several local jurisdictions, or when the impacts are felt across local jurisdictional boundaries.

The intent of the requirement for travel demand models was to identify a technical *tool* that could address these issues from the perspective of a uniform technical basis for analysis, and provide answers which, although not explicitly stated in the legislation, would lead to interjurisdictional agreements involving the assessment of mitigation fees to adjust the transportation system's capacity to absorb development.

As a unified City and County, San Francisco does not have to contend with the issue of estimating transportation impacts across city boundaries, although inter-county impacts must still be considered. However, the development of a method for travel demand forecasting for San Francisco presents a different set of challenges, of a technical nature, because of the difficulties inherent in accurately forecasting travel by modes other than the private automobile, such as transit and pedestrian trips. The approach to development of a travel demand analysis methodology for San Francisco's CMP is focused on these issues.

Methodology and Guidelines

a. Methodology

A methodology and guidelines for travel demand forecasting will be developed by the Authority during fiscal year 1993-4. The process for methodology development will include an evaluation of current software options available for computerized travel demand modeling. This evaluation will be part of a larger exploration of feasible methods to obtain travel demand forecasts to suit San Francisco's CMP process and other related data needs. The potential uses and limitations of continuing to rely on the MTC's regional model will also be considered, as an option to developing an entirely new model for San Francisco.

A major consideration in identifying the appropriate methodology for San Francisco is cost. Complex computerized travel demand models can only be built at great expense, and require major commitments to maintain and update them. Over the past two decades, because the market for computerized model applications has been largely suburban, models have evolved and improved in their accuracy to predict automobile trips. This trend has been reinforced by the widespread use and increasing sophistication of traffic engineering programs, which can be used in conjunction with travel demand models for specific purposes, such as intersection analyses.

Computerized models have traditionally not performed reliably enough when it comes to predicting ridership on alternative transportation modes, particularly bus transit or pedestrian trips, but this is also true for auto-based trips such as carpools and vanpools, which tend to exhibit characteristics different from single automobile trips. The level of investment in a computerized model must be weighed against its ability to deliver, with more than marginal reliability, the types of data that would be meaningful for the strategic analysis purposes of the San Francisco CMP.

Another significant consideration is the accuracy of the database used in the travel demand forecasting process. The explanatory power of a computerized model will only be a reflection of the quality of the underlying database. A sketchy database will ensure unreliable results, particularly if it is not kept up to date. Database upkeep can be a major associated expense, but costs can be mitigated by building reporting requirements into existing development impact guidelines and other land use and demographic analysis procedures. In developing a database for analysis of impacts, the Authority will maximize utilization of already existing information, and will emphasize coordination with City departments so that

data collection efforts undertaken for special purposes, such as the 1995 travel behavior survey to demonstrate air quality compliance, are designed to provide information useful to the travel demand forecasting process, as well.

Even when supported by an accurate database, a computerized travel model will require major fine-tuning before it can accurately reflect travel behavior in an environment like San Francisco, with its high intensity of economic activity crammed into a reduced geographic area replete with travel choices. A comprehensive, accurate, and well-maintained database, on the other hand, is very desirable in its own right, and can be used for analysis even in the absence of a computerized model. Granted, the types of analysis that could be performed would be more limited, but so would be the costs.

The preceding discussion highlights the need to carefully consider all the options before making a major financial commitment to a travel forecasting path. Figure 10-1 shows the proposed process for identifying the method best suited for our purposes. The process will take into account CMP requirements, potential applications of forecasting tools to serve the needs of City departments involved in travel analysis, and a number of other factors. The process will result in recommendations for a specific method and an implementation timetable.

Potential applications include the following:

- Analysis of subarea plans and major development proposals
- Update of the Transportation Element of the City's General Plan
- Assessment of auto diversion potential and vehicle emission impacts of alternative transportation improvements
- Assessment of ridership impacts of alternative transit services
- Traffic engineering applications

b. Guidelines

Travel demand forecasting guidelines will be developed as a corollary to the choice of a forecasting methodology. The guidelines will spell out the details of the methodology and procedures to be followed in developing travel forecasts for CMP purposes. The guidelines will be closely coordinated with those developed for land use analysis and deficiency plans.

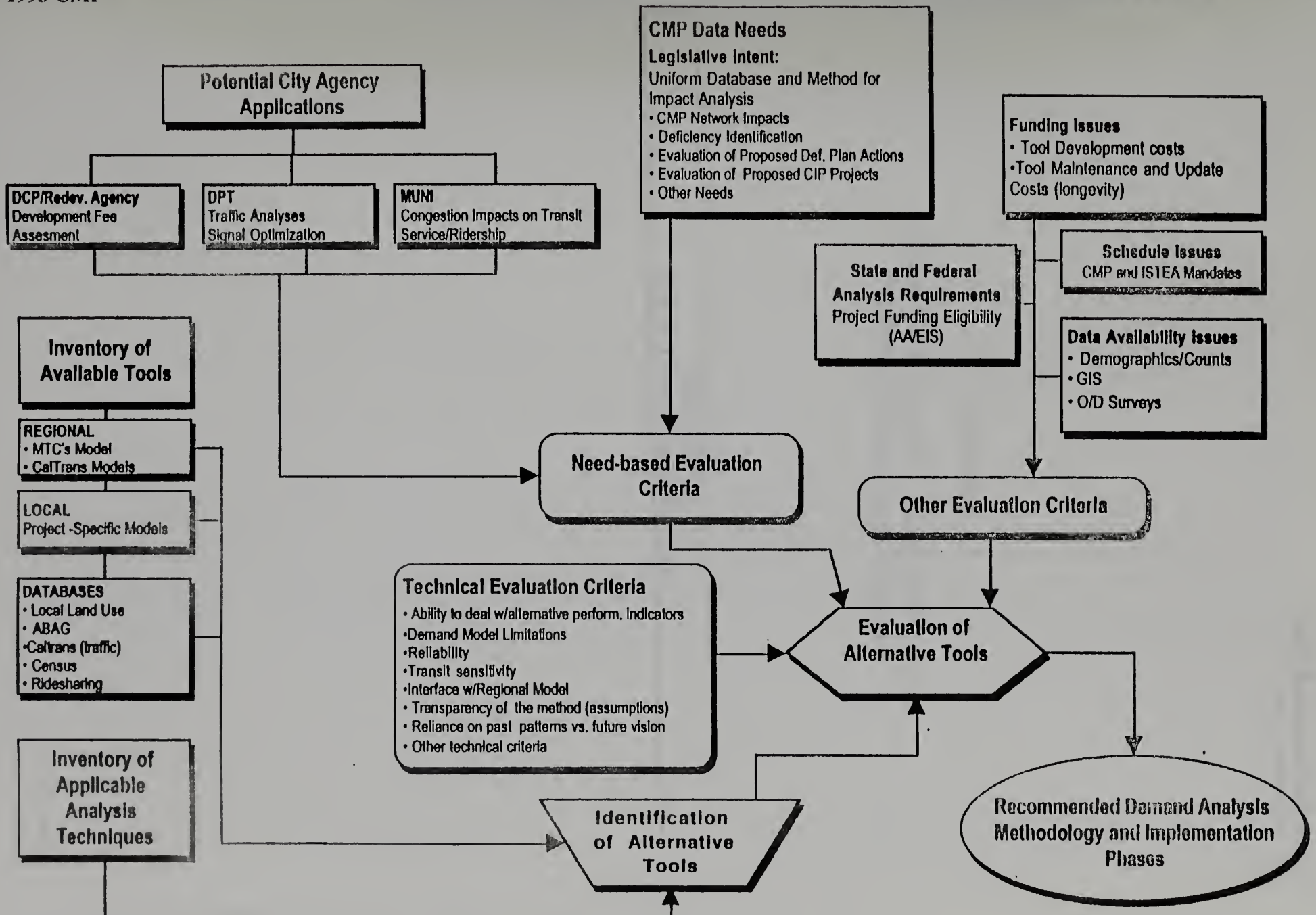
Timetable for Implementation and Interim Approach

It is anticipated that the methodology and guidelines for travel demand forecasting will be finalized by March 1994, and adopted by the Authority Board in May. In the meantime, the current transportation impacts analysis methods (see Appendix IV) will be used as an interim approach for CMP purposes, complemented by special analyses, as appropriate.

Work Program Items - Key Milestones

- Methodology development, Phase 1: identification of needs and constraints, inventory of tools and techniques - By May 1994
- Draft Methodology and Guidelines - By September 1994
- Final Methodology and Guidelines - By January 1995

Figure 10-1
Travel Demand Analysis Methodology Development Process



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APPENDIX I

California Government Codes Referencing Congestion Management Programs

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CHAPTER 2.6 - CONGESTION MANAGEMENT

65088. The Legislature finds and declares all of the following:

a) Although California's economy is critically dependent upon transportation, its current transportation system relies primarily upon a street and highway system designed to accommodate far fewer vehicles than are currently using the system.

b) California's transportation system is characterized by fragmented planning, both among jurisdictions involved and among the means of available transport.

c) The lack of an integrated system and the increase in the number of vehicles are causing traffic congestion that each day results in 400,000 hours lost in traffic, 200 tons of pollutants released into the air we breathe, and three million one hundred thousand dollars ($3,100,000) added costs to the motoring public.

d) To keep California moving, all methods and means of transport between major destinations must be coordinated to connect our vital economic and population centers.

e) In order to develop the California economy to its full potential, it is intended that federal, state, and local agencies join with transit districts, business, private and environmental interests to develop and implement comprehensive strategies needed to develop appropriate responses to transportation needs.

65088.1. As used in this chapter the following terms have the following meanings:

a) Unless the context requires otherwise, "regional agency" means the agency responsible for preparation of the regional transportation improvement program.

b) Unless the context requires otherwise, "agency" means the agency responsible for the preparation and adoption of the congestion management program.

c) "City" includes a city and county.

d) "Commission" means the California Transportation Commission.

e) "Department" means the Department of Transportation.

f) "Parking cash-out program" means an employer-funded program under which an employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the employer would otherwise pay to provide the employee with a parking space. "Parking subsidy" means the difference between the out-of-pocket amount paid by an employer on a regular basis in order to secure the availability of an employee parking space not owned by the employer and the price, if any, charged to an employee for use of that space.

A parking cash-out program may include a requirement that employee participants certify that they will comply with guidelines established by the employer designed to avoid neighborhood parking problems, with a provision that employees not complying with the guidelines will no longer be eligible for the parking cash-out program.

g) "Urbanized area" has the same meaning as is defined in the 1990 federal census for urbanized areas of more than 50,000 population.

h) "Interregional travel" means trips that have neither origin nor destination within the boundary of the congestion management program.

65089.(a) A congestion management program shall be developed, adopted, *and updated biennially consistent with the schedule for adopting and updating the regional transportation*

improvement program, for every county that includes an urbanized area, and shall include every city and the county. The program shall be adopted at a noticed public hearing of the agency. The program shall be developed in consultation with, and with the cooperation of, the transportation planning agency, regional transportation providers, local governments, the department, and the air pollution control district or the air quality management district, either by the county transportation commission, or by another public agency, as designated by the resolutions adopted by the county board of supervisors and the city councils of a majority of the cities representing a majority of the population in the incorporated area of the county.

(b) The program shall contain all of the following elements:

(1) (A) Traffic level of service standards established for a system of highways and roadways designated by the agency. The system shall include at a minimum all state highways and principal arterials. No highway or roadway designated as a part of the system shall be removed from the system. All new state highways and principal arterials shall be designated as part of the system. Level of service (LOS) shall be measured by Circular 212, (or by the most recent version of the Highway Capacity Manual), or by a uniform methodology adopted by the agency which is consistent with the Highway Capacity Manual. The determination as to whether an alternative method is consistent with the Highway Capacity Manual shall be made by the regional agency, except that the department shall make this determination instead if either (i) the regional agency is also the agency, as those terms are defined in Section 65088.1, or (ii) the department is responsible for preparing the regional transportation improvement plan for the county.

(B) In no case shall the LOS standards established be below the level of service E or the current level, whichever is farthest from level of service A, except where a segment or intersection has been designated as deficient and a deficiency plan has been adopted pursuant to Section 65089.3.

(2) Standards established for the frequency and routing of public transit, and for the coordination of transit service provided by separate operators.

(3) A trip reduction and travel demand element that promotes alternative transportation methods, such as carpools, vanpools transit, bicycles, and park-and-ride lots; improvements in the balance between jobs and housing; and other strategies, including flexible work hours and parking management programs. *The agency shall consider parking cash-out programs during the development and annual update of the trip reduction and travel demand element.*

(4) A program to analyze the impacts of land use decisions made by local jurisdictions on regional transportation systems, including an estimate of the costs associated with mitigating those impacts. In no case shall the program include an estimate of the costs of mitigating the impacts of interregional travel. The program shall provide credit for local public and private contributions to improvements to regional transportation systems. However, in the case of toll road facilities, credit shall only be allowed for local public and private contributions which are unreimbursed from toll revenues or other state or federal sources. The agency shall calculate the amount of the credit to be provided.

(5) A seven-year capital improvement program to maintain or improve the traffic level of service and transit performance standards developed pursuant to paragraphs (1) and (2), and to mitigate regional transportation impacts identified pursuant to paragraph (4), which conforms to

transportation-related vehicle emissions air quality mitigation measures.

(c) The agency, in consultation with the regional agency, cities, and the county, shall develop a uniform data base on traffic impacts for use in a countywide transportation computer model and shall approve transportation computer models of specific areas within the county that will be used by local jurisdictions to determine the quantitative impacts of development on the circulation system that are based on the countywide model and standardized modeling assumptions and conventions. The computer models shall be consistent with the modeling methodology adopted by the regional planning agency. The data bases used in the models shall be consistent with the data bases used by the regional planning agency. Where the regional agency has jurisdiction over two or more counties, the data bases used by the agency shall be consistent with the data bases used by the regional agency.

(d)(1) The city or county in which a commercial development will implement a parking cash-out program which is included in a congestion management program pursuant to subdivision (b), or a deficiency plan pursuant to Section 65089.3, shall grant to that development an appropriate reduction in the parking requirements otherwise in effect for new commercial development.

(2) At the request of an existing commercial development that has implemented a parking cash-out program, the city or county shall grant an appropriate reduction in the parking requirements otherwise applicable based on the demonstrated reduced need for parking, and the space no longer needed for parking purposes may be used for other appropriate purposes.

65089.2.(a) Congestion management programs shall be submitted to the regional agency. The regional agency shall evaluate the consistency between the program and the regional transportation plans required pursuant to Section 65080. In the case of multicounty regional transportation planning agency, that agency shall evaluate the consistency and compatibility of the programs within the region.

(b) The regional agency, upon finding that the program is consistent, shall incorporate the program into the regional transportation improvement program as provided for in Section 65082. If the regional agency finds the program is inconsistent, it may exclude any project in the congestion management program from inclusion in the regional transportation improvement program.

(c)(1) It is the intent of the Legislature that the regional agency, when its boundaries include areas in more than one county, should resolve inconsistencies and mediate disputes which arise between agencies related to congestion management programs adopted for those areas.

(2) It is the further intent of the Legislature that disputes which may arise between regional agencies, or agencies which are not within the boundaries of a multicounty regional transportation planning agency, should be mediated and resolved by the Secretary of the Business, Housing and Transportation Agency, or an employee of that agency designated by that secretary, in consultation with the air pollution control district or air quality management district within whose boundaries the regional agency or agencies are located.

65089.3.(a) The agency shall monitor the implementation of all elements of the congestion management program. Annually, the agency shall determine if the county and cities

are conforming to the congestion management program, including, but not limited to, all of the following:

(1) Consistency with levels of service and performance standards, except as provided in subdivisions (b) and (c).

(2) Adoption and implementation of a trip reduction and travel demand ordinance.

(3) Adoption and implementation of a program to analyze the impacts of land use decisions, including the estimate of the costs associated with mitigating these impacts.

(b)(1) A city or county may designate individual deficient segments or intersections which do not meet the established level of service standards if, prior to the designation, at a noticed public hearing, the city or county has adopted a deficiency plan which shall include all of the following:

(A) An analysis of the causes of the deficiency.

(B) A list of improvements necessary for the deficient segment or intersection to maintain the minimum level of service otherwise required and the estimated costs of the improvements.

(C) A list of improvements, programs, or actions, and estimates of costs, that will (i) measurably improve the level of service of the system, as defined in subdivision (b) of Section 65089, and (ii) contribute to significant improvements in air quality, such as improved public transit service and facilities, improved non motorized transportation facilities, high occupancy vehicle facilities, and transportation control measures. The air quality management district or the air pollution control district shall establish and periodically revise a list of approved improvements, programs, and actions which meet the scope of this paragraph. If an improvement, program or action is on the approved list and has not yet been fully implemented, it shall be deemed to contribute to significant improvements in air quality. If an improvement, program, or action is not on the approved list, it shall not be implemented unless approved by the local air quality management district or air pollution control district.

(D) An action plan, consistent with the provisions of Chapter 5 (commencing with Section 66000) of Division 1 of Title 7, that shall be implemented, consisting of improvements identified in paragraph (C), that are found by the agency to be in the interest of the public's health, safety and welfare. The action plan shall include a specific implementation schedule.

(2) A city or county shall forward its adopted deficiency plan to the agency. The agency shall hold a noticed public hearing within 60 days of receiving the deficiency plan. Following the hearing, the agency shall either accept or reject the deficiency plan in its entirety, but the agency may not modify the deficiency plan. If the agency rejects the plan, it shall notify the city or county of the reasons for that rejection.

(c) The agency, after consultation with the regional agency, the department, and the local air quality management district or air pollution control district, shall exclude from the determination of conformance with level or service standards, the impacts of any of the following:

(1) Interregional travel.

(2) Construction, rehabilitation, or maintenance of facilities that impact the system.

(3) Freeway ramp metering.

(4) Traffic signal coordination by the state or multijurisdictional agencies.

(5) Traffic generated by the provision of low and very low income housing.

~~(d) For the purposes of this chapter, the impacts of a trip which originates in one county and which terminates in another county shall be included in the determination of~~

~~conformance with the level of service standards with respect to the originating county only. A roundtrip shall be considered to consist of two individual trips.~~

(6)(A) Traffic generated by high density residential development located within one-fourth of a mile of a fixed rail passenger station.

(6)(B) Traffic generated by any mixed use development located within one-fourth of a mile of a fixed rail passenger station, if more than half of the land area, or floor area, of the mixed use development is used for high density residential housing, as determined by the agency.

(6)(C) For the purposes of this section, the following terms have the following meanings:

(i) "High density" means residential density which is equal to or greater than 120 percent of the maximum residential density allowed under the local general plan and zoning ordinance.

(ii) "Mixed use development" means development which integrates compatible commercial or retail uses, or both, with residential uses, and which, due to the proximity of job locations, shopping opportunities, and residences, will discourage new trip generation.

(d) For the purposes of this chapter, the impacts of a trip which originates in one county and which terminates in another county shall be included in the determination of conformance with level of service standards with respect to the originating county only. A roundtrip shall be considered to consist of two individual trips.

~~*(e) It is the intent of the Legislature that a deficiency plan be prepared and adopted by the city or county, and approved by the agency, prior to the occurrence of a deficiency.*~~

65089.4.(a) If, pursuant to the annual monitoring provided for in Section 65089.3, the agency determines, following a noticed public hearing, that a city or county is not conforming with the requirements of the congestion management program, the agency shall notify the city or county in writing of the specific areas of nonconformance. If, within 90 days of the receipt of the written notice of nonconformance, the city or county has not come into conformance with the congestion management program, the governing body of the agency shall make a finding of nonconformance and shall submit the finding to the commission and to the Controller.

(b) (1) Upon receiving notice from the agency of nonconformance, the Controller shall withhold apportionments of funds required to be apportioned to that nonconforming city or county by Section 2105 of the Streets and Highways Code; ~~until the Controller is notified by the agency that the city or county is in conformance.~~

(2) If, within the 12-month period following the receipt of a notice of nonconformance, the Controller is notified by the agency that the city or county is in conformance, the Controller shall allocate the apportionments withheld pursuant to this section to the city or county.

(3) If the Controller is not notified by the agency that the city or county is in conformance pursuant to paragraph (2), the Controller shall allocate the apportionments withheld pursuant to this section to the agency.

(c) The agency shall use funds apportioned under this section for projects of regional significance which are included in the capital improvement program required by paragraph (5) of subdivision (b) of Section 65089, or in a deficiency plan which has been adopted by the agency. The agency shall not use these funds for administration or planning purposes.

65089.5. Failure to complete or implement a congestion management program shall not give rise to a cause of action against a city or county for failing to conform with its general plan, unless the city or county incorporates the congestion management program into the transportation element of its general plan.

65089.6. A proposed development specified in a development agreement entered into prior to July 10, 1989, shall not be subject to any action taken to comply with this chapter, except actions required to be taken with respect to the trip reduction and travel demand element of a congestion management program pursuant to paragraph (3) of subdivision (b) of Section 65089.

[EXEMPTIONS PERTAINING TO LOS ANGELES COUNTY]
65089.7(a) Buildings and structures that were damaged or destroyed in Los Angeles County as a result of the civil unrest during the state of emergency declared by the Governor on April 19, 1992, are not subject to the requirements of this chapter when permission is sought to repair or rebuild. This section does not exempt buildings or structures from any other requirement of the local jurisdiction other applicable.

(b) This section shall become inoperative on June 1, 1995, and as of January 1, 1996, is repealed, unless a later enacted statute, which becomes effective on or before January 1, 1996, deletes or extends the dates on which it becomes inoperative and is repealed.

[REGIONAL TRANSPORTATION PLAN]
65081. The regional transportation plan shall include:

(a) A policy element that considers important transportation issues and describes the desired short- and long-range transportation goals, and pragmatic objective and policy statements. The objective and policy statements shall consider probable funding constraints.

(b) An action element that describes the programs and actions necessary to implement the plan and assigns implementation responsibilities. The action element shall also include a program for developing intracity and intercity bicycle programs.

The action element shall include all congestion management programs adopted pursuant to Chapter 2.6 (commencing with Section 65088).

(c) A financial element that summarizes the cost of plan implementation, compares these costs to a realistic projection of available revenues, and includes estimates of expected surplus and deficits. It shall contain recommendations for the allocation of funds and for the development of new sources of revenues if needed.

[REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM]
65082.(a) A seven-year regional transportation improvement program shall be prepared, adopted, and submitted to the California Transportation Commission on or before December 1 of each odd-numbered year, updated every two years, pursuant to Sections 65080 and 65808.5 and the guidelines adopted pursuant to Section 14530.1, to include projects and programs proposed to be funded, in whole or in part, by funds which are any of the following:

(1) For flexible congestion relief projects, as defined in Section 164.2 of the Streets and Highways Code.

(2) For urban rail transit and commuter rail projects. Major projects shall include an escalated current cost updated to at least November 1 of the year of submittal, and be listed

by relative priority, taking into account need, delivery milestone dates, as defined in Section 14522.5, and the availability of funding.

(b) Congestion management programs adopted pursuant to Section 65089 shall be incorporated into the regional transportation improvement program submitted to the commission by December 1, 1991, and every two years thereafter.

(c) The incorporation of the congestion management program into the regional transportation improvement program required to be submitted to the commission by December 1, 1991, may be delayed for a period not to exceed one year if an environmental impact report is required to be prepared for the congestion management program pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code, and the following conditions are met:

(1) The agency, as defined by Section 65088.1, adopts written findings that the congestion management program cannot be incorporated into the regional transportation improvement program by December 1, 1991, due to the time required to prepare an environmental impact report pursuant to Division 13 (commencing with Section 21000) of the Public Resources Code.

(2) The agency adopts a schedule for development of the congestion management program that will result in its adoption no later than December 1, 1992, and submits a report to the Legislature by July 1, 1992, on the progress of complying with this section.

(3) The agency, county, and cities take every action necessary to assure the congestion management program will be adopted by December 1, 1992.

(d) If the incorporation of the congestion management program into the regional transportation improvement program is delayed pursuant to subdivision (c), both of the following shall apply:

(1) Any project included in the state transportation improvement program or the traffic systems management program prior to December 1, 1992, which is otherwise required to be included in the congestion management program, pursuant to subdivision (e), but which is not included in the congestion management program to be incorporated into the regional transportation improvement program pursuant to subdivision (b), shall be deleted from the state transportation improvement program or the traffic systems management program.

(2) Local projects which are otherwise required to be included in the congestion management program, pursuant to subdivision (e), may be included in the regional transportation improvement program to be submitted to the California Transportation Commission by December 1, 1991. Any local project which is included in the regional transportation improvement program after December 1, 1991, but prior to December 1, 1992, which is otherwise required to be included in the congestion management program, but which is not included in the congestion management program to be incorporated into the regional transportation improvement program pursuant to subdivision (b), shall be deleted from the regional transportation improvement program.

(e) Local projects not included in a congestion management program shall not be included in the regional transportation improvement program. Projects and programs adopted pursuant to subdivision (a) shall be consistent with the seven-year capital improvement program adopted pursuant to paragraph (5) of subdivision (b) of Section 65089, and the guidelines adopted pursuant to Section 14530.1.

(f) Other projects may be included in the regional transportation improvement program if listed separately.

(g) Unless a county not containing urbanized areas of over 50,000 population notifies the Department of Transportation by July 1 that it intends to prepare a regional transportation improvement program for that county, the department shall, in consultation with the affected local agencies, prepare the program for all counties for which it prepares a regional transportation plan.

(h) The regional transportation improvement program may not change the project delivery milestone date of any state project as shown in the prior adopted state transportation program without the consent of the department or other agency responsible for the project delivery.

[STATEWIDE CMP STUDY]

(a) The Los Angeles County Metropolitan Transportation Authority may, in cooperation with other interested public and private entities, conduct a study of the requirements of the congestion management program prescribed by Chapter 2.6 (commencing with Section 65088) of Title 7 of Division 1 of the Government Code, with the objective of recommending modifications, if any, to the program which reduce or eliminate any inconsistency with the requirements of the California Clean Air Act of 1988 (Chapter 1568 of the Statutes of 1988) and the federal Clean Air Act Amendments of 1990 (P.L. 101-549). The elements of the study shall include both of the following:

(1) Comparison of the effectiveness of the use of level of service standards with other measurable standards, including, but not limited to, vehicle miles traveled and average vehicle ridership, for both determining mobility and achieving the reductions in motor vehicle emissions required under state and federal law.

(2) Consideration of the most efficient, simple, and cost-effective institutional structure and roles necessary to implement any recommendations, including, but not limited to, a review of existing requirements to implement transportation control measures pursuant to state and federal air quality requirements.

(b) The authority may accept public and private contributions to fund the study.

(c) If a study is conducted, a study steering committee shall be selected by the executive director of the authority, that includes all of the following:

(1) A representative of a national environmental organization.

(2) Two persons representing air quality management or pollution control districts, one of which shall be sough Coast Air Quality Management District.

(3) A representative of the California Building Industry Association.

(4) A representative of Californians for Better Transportation.

(5) Two persons representing multicounty regional transportation planning agencies, one of which is located in southern California and one of which is located in northern California.

(6) A person representing cities.

(7) A person representing counties.

(8) A person representing transit operators.

(9) Two persons representing agencies designated to develop a congestion management program, including one representative of an agency in northern California, and one representative of an agency in southern California.

(10) A representative of the Department of Transportation designated by the Governor.

(11) A representative of the Governor's office of Planning and Research designated by the Governor.

(12) A representative of the State Air Resources Board designated by the Governor.

[CHANGES TO THE HEALTH AND SAFETY CODE RELATED TO PARKING CASH-OUT]

43845.(a) In any air basin designated as a nonattainment area pursuant to Section 39608, each employer of 50 persons or more who provides a parking subsidy to employees, shall offer a parking cash-out program. "Parking cash-out program" means an employer-funded program under which an employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the employer would otherwise pay to provide the employee with a parking space.

(b) A parking cash-out program may include a requirement that employee participants certify that they will comply with guidelines established by the employer designed to avoid neighborhood parking problems, with a provision that employees not complying with the guidelines will no longer be eligible for the parking cash-out program.

(c) As used in this section, the following terms have the following meanings:

(1) "Employee" means an employee of an employer subject to this section.

(2) "Parking subsidy" means the difference between the out-of-pocket amount paid by an employer on a regular basis in order to secure the availability of an employee parking space not owned by the employer and the price, if any, charged to an employee for use of that space.

(d) Subdivision (a) does not apply to any employer who, on or before January 1, 1993, has leased employee parking, until the expiration of that lease or unless the lease permits the employer to reduce, without penalty, the number of parking spaces subject to the lease.

(e) It is the intent of the Legislature, in enacting this section, that the cash-out requirements apply only to employers who can reduce, without penalty, the number of paid parking spaces they maintain for the use of their employees and instead provide their employees the cash-out option described in this section.

[CHANGES TO THE REVENUE AND TAXATION CODE RELATED TO PARKING CASH-OUT]

17090. (NEW SECTION) Gross income includes cash allowances received by an employee under a parking cash-out program, except any portion used for a ridesharing purpose and excluded from gross income by Section 17149.

17202. (NEW SECTION) There shall be allowed to an employer as an ordinary and necessary expense paid or incurred during the taxable year in carrying on any trade or business (as provided in Section 162(a) of the Internal Revenue Code), the expenses involved in carrying out a parking cash-out program, as defined by subdivision (f) of Section 65088.1 of the Government Code.

24343.5.(a) (AMENDED SECTION) In addition to the deduction allowed by Section 24343, a deduction shall be allowed to an employer as an ordinary and necessary expense paid or incurred during the income year in carrying on any trade or business for those expenses involved in any of the following ridesharing arrangements:

(1) Subsidizing employees commuting in vanpools.

(2) Subsidizing employees commuting in private commuter buses or buspools.

(3) Subsidizing monthly transit passes for its employees or for use by the employee's dependents, except that no deduction shall be allowed for transit passes issued for the use of elementary and secondary school students.

(4) Subsidizing employees commuting in subscription taxipools.

(5) Subsidizing employees commuting in a carpool.

(6) In the case of an employer who offers free parking to its employees, offering a cash equivalent to employees who do not require parking, including a parking cash-out program, as defined by subdivision (f) of Section 65088.1 of the Government Code.

(7) Providing free or preferential parking to carpools, vanpools, or any other vehicle used in a ridesharing arrangement.

(8) Making facility improvements to encourage employees, for the purpose of commuting from their homes, to participate in ridesharing arrangements, to use bicycles, or to walk. These facility improvements may include, but are not limited to, any of the following: the construction of bus shelters; the installation of bicycle racks and other bicycle-related facilities, such as showers and locker rooms; and parking lot modifications to provide carpools, vanpools, or buspools with preferential treatment. The cost of these facility improvements shall be allowed as a depreciation deduction. Notwithstanding subdivision (c), the depreciation deduction shall be allowable over a 36-month period.

(9) Providing company commuter van or bus service to its employees and to others for commuting from their homes, but not for transportation required as part of the employer's business activities, except as otherwise provided in this section. The capital costs of providing this service shall not be an eligible deduction under this section.

(10) Providing to employees transportation services which are required as part of the employer's business activities to the extent that the transportation would be provided by employees without reimbursement in the absence of an employer-sponsored ridesharing incentive program. The capital costs of providing this service shall not be an eligible deduction under this section.

(b) For purposes of this section:

(1) "Employer" means either of the following:

(A) A taxpayer for whom services are performed by employees, except entities which are not subject to tax under this part.

(B) A taxpayer which is a private or public educational institution which enrolls students at higher than the secondary level.

(2) "Employee" means either of the following:

(A) An individual who performs service for an employer for more than eight hours per week for remuneration.

(B) Any commuting student, as defined in paragraph (3).

(3) "Commuting student" means a registered full-time student at a college, university, or other postsecondary educational institution, who lives apart from the property which is designated as the "employment site" for the purpose of this section, and who travels between his or her residence and the designated employment site on a regular, though not necessarily daily, basis.

(4) "Employer-sponsored ridesharing incentive program" means a program undertaken by an employer either alone or in cooperation with other employers to encourage or provide, or both, fiscal [or] other incentives to employees to

make the home-to-work commute trip by any mode other than the single-occupant motor vehicle.

(5) "Company commuter bus or van" means a highway vehicle which meets all of the following criteria:

(A) Has al least seven or more persons commuting on a daily basis to and from work.

(B) At lease 50 percent of the mileage of which can be reasonably expected to be used for the purpose of transporting employees to and from work.

(C) Is acquired by the taxpayer on or after the date of enactment of this legislation.

(6) "Vanpool" means seven or more persons commuting on a daily basis to and from work by means of a vehicle with a seating arrangement designed to carry 7 to 15 adult persons.

(7) "Monthly transit pass" means any bulk purchase of transit rides that entitles the purchaser to 40 or more rides per month, whether at a discount rate or the base fare rate.

(8) "Transit" means transportation service for use by the general public that utilizes buses, railcars, or ferries with a seating capacity of 16 or more persons.

(9) "Subscription taxipool" means a type of service in which employers or groups of employees contract with a public or private taxi operator to provide daily commuter service for a group of preassembled subscribers on a prepaid or daily-fare basis, following a relatively fixed route and schedule tailored to meet the needs of the subscribers.

(10) "Ridesharing arrangement" means the transportation of persons in a motor vehicle where that transportation is incidental to another purpose of the driver. The term includes ridesharing arrangements known as carpools, vanpools, and buspools.

(11) "Carpool" means two or more persons commuting on a daily basis to and from work by means of a vehicle with a seating arrangement designed to carry less than seven adults, including the driver.

(12) "Buspool" means 16 or more persons commuting on a daily basis to and from work by means of a vehicle with a seating arrangement designed to carry more than 15 adult passengers.

(13) "Private commuter bus" means a highway vehicle which meets all of the following criteria:

(A) Has a seating capacity of least seven adults, including the driver.

(B) At least 50 percent of the mileage of which can be reasonably expected to be used for the purpose of transporting employees to and from work.

(C) Is acquired by the taxpayer on or after the date of enactment of this section.

(D) With respect to which the taxpayer makes an election under this paragraph on its return for the income year in which the vehicle is placed in service.

Key to Typefaces Used in the Text

Upper and lower case: Original CMP legislation including AB 471 and AB 1791 (1990 Leg. Session)

Italics: Changes introduced by AB 2109 (1992 Leg. Session)

Underlined Italics: Changes introduced by AB 3093 (1992 Leg. Session)

~~Strikethrough~~: Original language deleted by AB 2109 or AB 3093

~~*Strikethrough-italics*~~: Language introduced by AB 2109 or AB 3093 and later deleted by AB 3090 (1992 omnibus bill)

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APPENDIX II

Regional (MTC) Guidance Regarding the Development of Congestion Management Programs

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MTC
METROPOLITAN TRANSPORTATION COMMISSION

JOSEPH P. BORT METROCENTER
101 EIGHTH STREET
OAKLAND, CA 94607-4700
510/464-7700•TDD/TTY 510/464-7769
FAX 510/464-7848

MEMORANDUM

TO: Work Program Committee DATE: 4/9/93

FR: Executive Director W.I.: 902.91.01

RE: MTC Review Process for 1993 Congestion Management Programs Resolution No. 2537

Introduction

In June 1990, MTC adopted Resolution No. 2166 to establish policies pertaining to the regional role in the Congestion Management Program process. Since that time, the relevant CMP statutes have been amended and MTC guidance for consistency has been further developed. This revision to Resolution No. 2537 and its attachments reflect these changes.

Background

Congestion Management Programs are county based planning processes required to contain the following elements:

- Traffic Level of Service Standards
- Transit Service Standards
- Trip Reduction and Travel Demand Element
- Land Use Impact Analysis
- Capital Improvement Program (CIP)

The Congestion Management Agency is responsible for the preparation and adoption of the Congestion Management Program (CMP) and for monitoring compliance with the CMP.

Amendments to the CMP Statutes

The Legislature passed AB 3093 in August 1992 (Chapter 444, Stats. 1992), encompassing a number of significant modifications to CMP statutes. In brief, these modifications:

1) Change the schedule for updating the CMPs from annually to biennially, consistent with the schedule for adopting and updating the Regional Transportation Improvement Program (RTIP);

2) State the Legislature's intent that regional agencies resolve inconsistencies and mediate disputes between congestion management programs within boundaries;

3) Specify that funds withheld from a non-conforming city or county be released to the CMA for projects of regional significance if the city or county remains out of conformance for more than 12 months (and be released to the city or county if conformance is established within this time period);

4) Exclude traffic generated by high density residential development and mixed use development with high density residential housing located within 1/4 mile of a rail passenger station from level of service conformance;

5) Require CMAs consider parking cash out programs during the development and update of the trip reduction and travel demand element (AB 2109);

6) Exempt buildings damaged in Los Angeles during the state of emergency in April 1992 from CMP requirements; and

7) Authorize the Los Angeles County Transportation Commission to conduct a study to reduce or eliminate inconsistencies of CMP requirements with air quality requirements.

MTC Responsibilities

MTC's responsibilities under CMP statutes are primarily oriented toward establishing consistency.

1) MTC shall evaluate the consistency between the 1993 CMPs and the 1994 Regional Transportation Plan (RTP). Consistency will be assessed primarily in terms of system definition, adequacy in addressing air quality requirements and long term financial projections, as now required under the Intermodel Surface Transportation Efficiency Act of 1991.

2) The CMP travel demand forecasting models shall be consistent with the regional databases and modeling methodologies. MTC's Checklist of Requirements for Modeling Consistency for the 1993 CMPs outlines these requirements, and has been included as Attachment B to Resolution No. 2166.

3) MTC shall evaluate the consistency and compatibility of the CMPs within the region. The 1992 revisions to the CMP statutes strengthened MTC's role in this regard, by further stating that it is the Legislative intent that the regional agency (MTC) resolve inconsistencies and mediate disputes which arise between agencies related to congestion management programs within a region.

With findings of consistency, MTC will incorporate the CMPs into the 1994 RTP Action Element. Projects proposed to MTC for the 1994 Regional Transportation Improvement Program (RTIP) from the 1993 CMP Capital Improvement Programs (CIPs) will be evaluated through the multi-modal priority setting process.

CMP consistency requirements and processes, and the multi-modal priority setting process have been developed by MTC staff in consultation with the CMA staffs. The consistency requirements are detailed in Attachments A and B. The multi-modal priority setting process for the 1994 RTIP and 1995 TIP is outlined in MTC Resolution No. 2526.

Schedule for CMPs and the Consistency Review Process

MTC staff has requested submittal of final draft CMPs by June 30, in order to allow for RTIP preparation and comments on regional consistency prior to the adoption of the Final CMPs. Staff will provide initial and formal comments on the draft CMPs at your September and October meetings, respectively. If CMAs submit draft CMPs to MTC at an earlier date, MTC staff will provide comments within 30 days, upon request. Final consistency findings will be made in November, 1993.

The schedule for this year's CMPs, focusing on MTC's role, is indicated below:

DATE	EVENT	RESPONSIBLE PARTY
June 30, 1993	Submittal of draft CMPs to MTC	CMAs
July-August	Staff meetings to review draft CMPs	MTC and CMA Staff
September 10	Consolidated initial comments on Bay Area draft CMPs to WPC	MTC staff/WPC
October 8	Formal comments on draft CMPs to WPC (remaining issues)	MTC Staff/WPC
	Hearing on draft RTIP	MTC Staff/WPC
October	CMAs deliver final CMPs to MTC	CMAs
November	Staff recommends consistency of CMPs through MTC Resolution	Staff/WPC/ Commission
	RTIP adopted	Staff/WPC/ Commission

Lawrence D. Dahms

LDD:VK:jlr:7888p17

Date: April 9, 1993
W.I.: 902.10.01
W.A.: 1258r
Referred By: WPC

ABSTRACT

Resolution No. 2537

This resolution adopts the Congestion Management Program Policy for the Bay Area.

This resolution supercedes Resolution No. 2166.

Date: April 9, 1993
W.I.: 902.10.01
W.A.: 1258r
Referred By: WPC

Re: Congestion Management Program Policy.

METROPOLITAN TRANSPORTATION COMMISSION

RESOLUTION NO. 2537

WHEREAS, the Metropolitan Transportation Commission (MTC) is the regional transportation planning agency for the San Francisco Bay Area pursuant to Government Code Sections 66500 et seq; and

WHEREAS, Government Code § 65080 requires each transportation planning agency to prepare a regional transportation plan and a regional transportation improvement program directed at the achievement of a coordinated and balanced regional transportation system; and

WHEREAS, Government Code § 65089 requires a designated local agency in each urbanized county to develop, adopt, and periodically update a congestion management program for the county and its included cities; and requires that this congestion management program be developed in consultation, among others, with the regional transportation planning agency; and

WHEREAS, Government Code § 65089.2 requires that the regional transportation planning agency must make a finding that each congestion management program is consistent with the regional transportation plan, and upon making that finding shall incorporate the congestion management program into the regional transportation improvement program; and

WHEREAS, Government Code § 65082 requires that congestion management programs be incorporated into the regional transportation improvement program approved by MTC; and

WHEREAS, MTC has adopted a Congestion Management Program Policy (MTC Resolution 2166) to provide guidance for all the counties and cities within the region in preparing their congestion management programs; and,

WHEREAS, MTC's Congestion Management Program Policy needs to be updated from time to time to provide further guidance, now, therefore, be it

RESOLVED, that MTC adopts the Congestion Management Program Policy, as set forth in Attachments A and B to this resolution, which are incorporated herein by reference; and, be it further

RESOLVED, that this resolution shall be transmitted to the nine Bay Area counties and their included cities for use in preparing their congestion management programs.

METROPOLITAN TRANSPORTATION COMMISSION

_____

Jane Baker, Chairwoman

The above resolution was entered into by the Metropolitan Transportation Commission at a regular meeting of the Commission held in Oakland, California, on April 28, 1993.

MTC POLICY RE: CONGESTION MANAGEMENT PROGRAMS

INTRODUCTION

This Policy is intended to provide Bay Area counties, cities, transit agencies, and other transportation interests with a "road map" of the Congestion Management Programs: how they were established, what they require, and how they might be implemented in this region. The Policy is organized into four sections:

Section I: Statutory requirements for the Congestion Management Program (CMP).

Section II: Metropolitan Transportation Commission's specific responsibilities and procedures for CMPs.

Section III: CMP agency responsibilities, and those of other agencies, including MTC recommendations.

Section IV: Suggested on-going assistance that MTC can provide for CMP development and implementation.

I. DESCRIPTION OF THE LEGISLATION

A. GENERAL

The Congestion Management Program was established as part of a bi-partisan legislative package crafted in 1989. The legislation created the opportunity for significant increases in transportation revenues, (contingent upon voter approval in the June, 1990 State election), and markedly changed state transportation planning and programming. The specific CMP provisions were originally chartered by the Katz-Kopp-Baker-Campbell Transportation Blueprint for the Twenty-First Century (AB 471 (Katz); Chapter 106, Statutes 1989) AB 471 (Katz) Chapter 106, Statutes of 1989; they were significantly revised by AB 1791 (Katz) Chapter 16, Statutes of 1990. Like the funding provisions, the CMPs became effective when voters approved Proposition 111 on June 5, 1990.

In August, 1992, the CMP statutes were further amended through passage of AB 3093 (Katz). Changes have been incorporated into the requirements as described below, where relevant.

B. CMP STATUTORY REQUIREMENTS

Key elements of the CMP statutory requirements are summarized below.

1) Designation and Authority of CMP Agency:

The County Board of Supervisors, and a majority of cities representing a majority of the population, must designate by resolution a public agency to prepare and adopt the Congestion Management Program. The jurisdiction of the CMP agency, which can be either a new or existing agency, is the county, and all included cities. The CMP agency also has authority to monitor its member county's and cities' compliance with the adopted program.

2) CMP Elements

The Congestion Management Program must contain the following elements.

o Traffic Level of Service (LOS) standards

- Must be established for a system of highways and roadways designated by the CMP agency. System to include at a minimum all state highways and principal arterials.

- The methodology for measuring LOS must be that contained in Circular 212 or most recent version of the Highway Capacity Manual. MTC has the prerogative to approve the use of another method, if it is consistent with the Highway Capacity Manual.

- Traffic standards must be set no lower than LOS "E" for any segment or intersection on the CMP system, unless the base year LOS was lower (i.e. "F").

- When measuring traffic LOS standards to determine conformance with CMP requirements (see I.B.3 following) impacts due to these factors are to be excluded from the LOS calculation in consultation with MTC and the Regional Air District:

  1) Interregional travel (defined as any vehicle trip that has neither its origin or destination within the boundary of the congestion management program).

  2) Construction, rehabilitation, or maintenance of facilities that impact the CMP designated system.

  3) Freeway ramp metering.

  4) Traffic signal coordination by the state or multi-jurisdictional agencies.

  5) Traffic generated by the provision of low and very low income housing.

6) Traffic generated by high density residential development and mixed use development, as specified, located within 1/4 mile of a fixed rail passenger station (added in 1992).

o Transit service standards

- Must be established for service frequency (i.e. headways), routing, and coordination among multiple transit agencies operating within the CMP jurisdiction.

o Trip Reduction and Travel Demand Element

- Must include alternatives to single occupant auto use, such as transit, van and carpooling, bicycles and park and ride lots.

- Must promote strategies to manage overall travel demand, such as jobs/housing balance, flextime, and parking strategies.

- Must consider inclusion of parking cash-out programs (added through AB 2109 in 1992).

o Land Use Impact Analysis

- Must include a program to analyze the impact of land use decisions by local jurisdictions on the regional transportation system, including an estimate of costs to mitigate those impacts. Note that the legislation excludes the costs associated with mitigating interregional travel (as defined above) from this estimate. Public and private contributions to regional transportation improvements may be credited.

- For purposes of the land use analysis program, the Metropolitan Transportation System (MTS) should be used as the basis for analysis of impacts on the "regional transportation systems".

o Capital Improvement Program (CIP)

- The CIP is a 7-year program.
- Projects in the CIP will be incorporated into the Regional Transportation Improvement Program (RTIP), for the programming of Flexible Congestion Relief and Urban and Commuter Rail funds.
- CIP projects also receive priority for state Traffic Systems Management funds.
- CIP projects must maintain or contribute to the achievement of traffic LOS and transit performance service.
- Projects must conform to transportation-related emissions air quality mitigation measures.

3) CMA Transportation Computer Model

- The CMA must develop in consultation with the regional agency, cities, and the county, a uniform data base on traffic impacts for use in a county wide transportation computer model.

- The CMA shall approve specific area models to be used by local jurisdictions to determine impacts of development on the circulation system that are based on the county wide model, standardized assumptions and conventions.

- The computer models of the CMAs shall be consistent with the modeling methodology and databases used by the regional agency.

4) CMP Compliance and Monitoring Requirements

- MTC must evaluate CMPs for consistency with the Regional Transportation Plan.

- Annually, the CMP agency must make a determination that its member cities and county are conforming to the CMP, including:

  - Consistency with traffic LOS and transit performance standards

  - Adoption and implementation of a trip reduction and travel demand ordinance

  - Adoption and implementation of a program for analyzing land use impacts on regional transportation systems (MTS).

- Any county or city can adopt a "deficiency plan" to include intersections or segments that do not or will not meet traffic LOS requirements. For these deficient facilities, the city or county can elect to implement actions, programs and improvements to the overall system (either on deficient facilities or on other parts of the system) if those actions, programs and improvements will "(1) measurably improve the level of service of the system; and (2) contribute to significant improvements in air quality". The region's air quality management district has developed a list of approved improvements, programs and actions appropriate for system level deficiency plans, as required under this provision.

II. MTC STATUTORY RESPONSIBILITY AND PROCEDURES

A. GENERAL:

MTC's direct responsibilities under CMP statutes involve consistency findings between the CMP and the Regional Transportation Plan (RTP), evaluation of the consistency of the CMA models with the regional model, evaluation of consistency among CMPs in the region, and the inclusion of the CMP projects in the Regional Transportation Improvement Program (RTIP).

B. CMP CONSISTENCY FINDING WITH THE RTP

1) Consistency with regional transportation system as defined in the Regional Transportation Plan.

The MTC Regional Transportation Plan underwent significant revisions for the 1991 Update, including a full Environmental Impact Report. The RTP defined a "Metropolitan Transportation System (MTS)" that includes highways, rail transit, corridor level arterials, and regional bus and ferry transit services. The MTS guides the investment of regional transportation funds, particularly discretionary funds. The MTS criteria and system are reviewed and updated as needed with subsequent updates of the RTP.

The CMP statute requires that the CMP agency designate a system of highways and roadways to "include at a minimum all state highways and principal arterials". This system designates which segments and/or intersections will be subject to the traffic LOS standards, and companion monitoring and compliance requirements.

In making a finding of compliance with the RTP, MTC would:

- Ensure that there is regional consistency among the CMP designated systems, particularly for facilities that cross county borders. Both CMP systems and the Metropolitan Transportation System of the RTP must contain the State Highway System, and it is expected that there will be considerable overlap among the arterials designated in each.

- Require that all projects in the CMP Capital Improvement Program (CIP) that are eligible for the Regional Transportation Improvement Program (RTIP) must be located on, or otherwise support or contribute to the performance of MTC's Metropolitan Transportation System in the RTP.

- Encourage the CMP agency to designate as part of its system any other highway or roadway that the CMP agency expects will play an important role in its overall congestion management program. CMP system modifications that are congruent with the regional MTS are particularly appropriate.

2) Consistency with pertinent Air Quality Plans, as incorporated in the RTP.

MTC will require that all CMPs be consistent with the region's adopted transportation control measures for the Federal and State Clean Air Plans.

- The RTP incorporates transportation control measures contained in the federal and state air quality plans to achieve and maintain the respective standards for ozone and carbon monoxide. For transportation control measures that require local implementation and approval, the CMA should address the timely implementation of these measures as they relate to the CMP and its associated CIP (a list of federal and state TCMs is provided in Table 1 of Attachment A, for more detailed descriptions see Volume III of the most current Transportation Improvement Program and the 1991 Clean Air Plan). Also, the CMP should not interfere with the timely implementation of those TCMs which do not require local funding or approval.

3) Consistency with RTP Financial Requirements and Projections.

Under the federal Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, the actions, programs and projects in the Regional Transportation Plan must be financially deliverable within reasonable estimates of public and private resources. Similar long range plan financial constraints are also required by federal air quality conformity requirements.

While the CMPs, and particularly their Capital Improvement Programs, are not subject to financial constraints, any integration of CMPs into the RTP must be consistent with the long range plan's financial projections and requirements. Consequently, projects from the CMP CIP will only be incorporated into the RTP to the extent that they fall within the RTP's financial parameters. MTC will work closely with CMAs to reach consensus on CMP project priorities, cost estimates and timing, as appropriate for RTP inclusion.

C. CONSISTENCY WITH REGIONAL TRAVEL MODEL.

The CMP statutes require each CMA to develop a uniform database for use in a county wide transportation model, and that the model be consistent with MTC's model. Specifically, the statutes require that:

> "The computer models shall be consistent with the modeling methodology adopted by the regional planning agency. The data bases used in the models shall be consistent with the data bases used by the regional planning agency."

Therefore, MTC seeks the development of a regionally consistent travel demand modeling "set" for the Bay Area, with fully coordinated regional and subregional models. This regional modeling "set" will provide a common foundation for transportation policy analysis, and transportation corridor and project level analyses.

For the 1993 CMPs, MTC has been working closely with CMA staff, Caltrans, and other interested parties to define "consistency" in modeling methodology and databases. The resulting consistency requirements have been stated concisely as an inventory of products of information and findings to be submitted to MTC, included as Attachment B, the MTC Checklist for Modeling Consistency for the 1993 CMPs.

* MTC will use the MTC Checklist for Modeling Consistency Requirements for 1993 CMPs to guide the consistency assessment of the CMA models with the MTC model.

The Checklist addresses:

- Demographic/econometric forecasts
- Pricing assumptions
- Network assumptions
- Auto ownership assumptions
- Trip generation methodology
- Trip distribution methodology
- Mode choice methodology
- Traffic assignment methodologies

A number of modeling issues remain outstanding. MTC recommends that these issues be incorporated into the work program for a regional modeling coordination committee (the "Committee"), reporting to the Planning and Programming Committee of the Partnership. The Committee will develop recommendations on these issues, to be incorporated into a revised version of the current Model Consistency Guidelines prior to the 1995 consistency evaluation cycle. The composition, work program and schedule of the Committee will be approved by the Planning and Programming Committee of the Partnership. The Committee will serve as a forum for sharing of modeling data and expertise in the region, and provide peer review for technical and policy issues involving the models developed by or for the CMAs, MTC, and other parties. The Committee will develop recommendations on issues including:

1. Revised model consistency guidelines for the 1995 consistency evaluation cycle;
2. A process that promotes self-assessment of consistency with the regional travel demand model, using a consistency checklist approach;
3. The development of tolerances for model inputs and outputs; and
4. Scheduling of major model database revisions.

D. EVALUATION OF CONSISTENCY BETWEEN DIFFERENT CMPS

The legislation requires also that "in the case of multi-county regional transportation agency, that agency shall evaluate the consistency and compatibility of the [congestion management] programs within the region".

The 1992 revisions to the statutes strengthens the role of the regional transportation agencies, stating that it is the Legislature's intention that the regional agency (i.e., MTC) resolve inconsistencies and mediate disputes between congestion management programs within a region.

- MTC will evaluate the consistency between different CMPs in the region, at the time that the CMP is submitted to the agency and a finding of consistency with the RTP is made. Since all CMPs must conform to the RTP, consistency among different CMPs should also be achieved.

- To facilitate this evaluation, CMAs should invite MTC staff to participate on appropriate county level CMP technical advisory committees, to facilitate exchange of information and anticipate any potential conflicts with other CMPs, or with the Regional Transportation Plan.

- MTC will set up procedures to hear and resolve conflicts that may be identified as part of the RTP/CMP consistency review, or to resolve inconsistencies and mediate disputes among CMPs in the Bay Area.

E. INCORPORATION OF CMP PROJECTS INTO THE RTIP

- The statute mandating new procedures for the State Transportation Improvement Program specifically requires that Caltrans prepare STIP Guidelines that include guidance for the incorporating CMP capital improvements into the Regional Transportation Improvement Program (RTIP). The statute requires a direct linkage between the CMPs and RTIP.

- CTC's adopted STIP guidelines address the CMP/RTIP linkage as follows:

  - Projects for RTIP funding must be submitted as part of a seven year capital improvement program from an adopted CMP.

  - CMPs be consistent with the Regional Transportation Plan before they can be incorporated into the RTIP; and

  - Projects should be included in the RTIP in accordance with CMP priorities, to the extent permitted by the availability of funds, and project fund eligibility.

- MTC has provided extensive additional guidance for the development of the Regional Transportation Improvement Program (RTIP) and federal Transportation Improvement Program (TIP), and the CMAs' specific roles therein. MTC Resolution No. 2526 outlines the multimodal

priority setting process for the Flexible Congestion Relief (FCR) funds in the 1994 RTIP, and the Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) funds in the 1995 TIP. This process includes procedures for the screening, scoring, and programming of projects. Specific requirements relevant to the CMAs and CMPs include:

- MTC will submit county "bid" targets for FCR, STP, and CMAQ funds to the CMAs.

- All projects that will be competing for FCR funds must be included in the CMP Capital Investment Program. Project proposals for STP and CMAQ funds do not have to be included in the CMP CIP, but must be submitted through the CMA.

- CMAs will coordinate their respective city, county, and transit district project candidate projects for FCR, STP and CMAQ funds, and submit a draft bid list to MTC.

- CMAs will work with MTC to develop a final bid list and project applications for FCR, STP and CMAQ funds; and review MTC staff evaluations and recommendations of project submittals in accordance with the screening, scoring and programming criteria.

Project programming guidance will be updated as needed for funding periods after the 1994 RTIP and 1995 TIP cycles.

F. PROCEDURES FOR CMP SUBMITTAL AND MTC REVIEW

- o CMPs will be required for each biennial RTIP cycle beginning with 1992.

- o To provide adequate review time, CMPs should be submitted to MTC by the end of each June preceding the December submittal of the RTIP to the California Transportation Commission.

- o MTC will work with individual counties, cities, transit agencies and CMP agencies to coordinate the development and review of CMPs, AB 3705 county wide plans, or any other pertinent local transportation plans.

- o MTC will make a finding of consistency with the RTP for the initial CMP, and every two years thereafter when the CMP is submitted for RTIP inclusion.

- Travel model assumptions and methodologies should be discussed with MTC early in the modeling process and should be responsive to regional guidance in place at the time. The model and forecasting process should be explained in an appendix of the CMP to facilitate MTC's review and consistency evaluation.

III. CMP AGENCY AND OTHER STATUTORY RESPONSIBILITY/ MTC RECOMMENDED POLICY

The CMP statute assigns the CMP agency significant responsibilities to develop, approve, and monitor the Congestion Management Program. These are outlined below, accompanied by MTC's suggestions for effectively carrying out these responsibilities.

A. CMP AGENCY RESPONSIBILITY

Program Development

1) Establish CMP Agency:

- Seek consensus when ever possible among participating decision making bodies.

2) Identify CMP system

- Consult with MTC to ensure consistency with RTP and its designated Metropolitan Transportation System (see Section II.A.1 above).

3) Set traffic LOS and transit performance standards

Traffic:

- Ensure that the county and all cities within the CMP jurisdiction use the same base year for initial LOS measurements

- Develop appropriate procedures for estimating and excluding the following statutorily exempt impacts from LOS measurements for monitoring and conformance purposes:

  - interregional travel
  - construction, rehabilitation, or maintenance of facilities that impact the [designated] system
  - freeway ramp metering
  - traffic signal coordination by the state and multi-jurisdictional agencies
  - traffic generated by the provision of low and very low income housing
  - traffic generated by high density and mixed use development, located within 1/4 mile of a fixed rail passenger station

- Select a consistent LOS methodology from those dictated in the statute, for use by the county and included cities.

Transit:

- Work with transit operators and MTC to establish performance standards for frequency and routing.

- Consult MTC particularly in the area of inter-operator coordination. Incorporate any coordination agreements reached under Government Code § 66516 requirements (MTC Resolution No. 2323).

- For multi-jurisdictional transit agencies, involved CMP agencies should coordinate efforts.

4) Adopt transportation demand element

- Should be consistent with MTC adopted transportation control measures for Federal and State air quality plans (see Section II.A.2 above).

5) Establish land use impact analysis program to determine impact of land development on regional transportation system; develop and use county level transportation computer model.

- Should be consistent with regional travel demand forecasting methodology, and data bases, including ABAG projections.

- Alternative land use projections may be used as an alternative basis for transportation forecasts, <u>in addition</u> to ABAG.

- Significant differences between modeling outcomes and conclusions will be resolved between MTC and the CMP agency.

6) Develop Capital Improvement Program to address achievement of LOS and performance standards

- CMP agency must incorporate projects eligible for RTIP funds (Flexible Congestion Relief and Urban and Commuter Rail) into the CMP, under the MTC adopted procedures for RTIP development (MTC Resolution No. 2526).

- The CIP should also incorporate projects funded from non-RTIP sources that contribute to traffic and transit standards achievement. CMP projects receive first priority for State TSM funds. In general, projects included in a well developed, comprehensive congestion management program will likely compete more successfully for any state funds than those projects not included in a CMP.

- o CIP capital projects should be developed considering the effects of travel demand management strategies included in TSM element/ ordinance.

Implementation and Monitoring

7) Establish CMP conformity finding procedures for the county and included cities, including criteria for the review and acceptance of county/city deficiency plans.

   - o Procedures for conformance findings for major regional facilities (highway and transit) that cross CMP agency boundaries should be developed cooperatively among the affected CMP agencies and MTC.

   - o If a finding of "non-conformance" is made for a city or county, and that party wishes to appeal that decision, MTC will, at the mutual request of the CMP agency and the affected county or city, serve as a neutral "third party fact finder" during the review of the decision.

8) Establish procedures for monitoring and reporting of CMP implementation.

   - o Provide appropriate information to MTC to assist in the implementation or monitoring of regional programs.

B. OTHER AGENCY RESPONSIBILITY

1) Local Jurisdictions: Develop Deficiency Plan to address segments or intersections that will not meet standards, as outlined in appropriate CMA and Air District guidance for the development of deficiency plans.

2) Air Quality Management District (Air District): Establish and revise a list of approved improvements, programs, and actions that contribute to air quality improvements; to be used by cities and counties in the development of deficiency plans.

   - o The Air District (or Air Districts for those counties in more than one air basin), with the cooperation of cities, counties and MTC, should develop and adopt procedures for establishing and amending the approved list. The Bay Area Air Quality Management District has adopted such a list on November 4, 1992--BAAQMD Resolution No. 2119 - "Deficiency List: Programs, Actions, and Improvements for Inclusion in Congestion Management and Program "Deficiency Plans".

   - o Air District(s) list should be consistent with adopted Transportation Control Measures to meet Federal and State air quality standards.

   - o Air District should coordinate with MTC in the development of the list, and procedures for amending it. MTC will give special assistance to counties whose CMP jurisdiction falls under more than one Air District, as requested.

IV. ADDITIONAL MTC ASSISTANCE

In addition in any planned assistance mentioned in Section II and III, MTC can help CMP agencies or their participating jurisdictions in other ways during the development of the CMPs. Options include:

- Funding: CMP agencies will most likely need additional funds to prepare their CMPs. While MTC currently does not have access to discretionary revenues for this specific purpose, MTC will assist in pursuing additional funding.

- Technical Workshops: MTC will continue to sponsor specific technical workshops to assist CMP agencies in the development and implementation of the Congestion Management Programs.

- Regional Modeling Coordinating Committee: MTC will support the development of a regional modeling coordinating committee to facilitate modeling in the region through discussion of inputs, techniques, outputs, schedules, data coordination and peer review.

TABLE 1

ADOPTED FEDERAL AND STATE TCMs

A. FEDERAL TCMs in SIP

The following lists include adopted federal and state transportation control measures (TCMs) for the San Francisco Bay Area. The TCMs marked with a "*" require full or partial implementation at the local level, and should be referenced specifically in the Congestion Management Programs. Detail on federal TCMs can be found in volume of the Transportation Improvement Program (MTC) and the 1991 Clean Air Plan (BAAQMD).

TCM 1	Reaffirm commitment to 28% transit ridership increase between 1978 and 1983
TCM 2	Support post-1983 improvements in the operators' five-year plans and, after consultation with the operators, adopt ridership increase target for the period 1983 through 1987
TCM 3	Seek to expand and improve public transit beyond committed levels*
TCM 4	High occupancy vehicle (HOV) lanes and ramp metering
TCM 5	Support RIDES' efforts
TCM 6	Continue efforts to obtain funding to support long range transit improvements
TCM 7	Preferential parking*
TCM 8	Shared use park and ride lots*
TCM 9	Expand commute alternatives program*
TCM 10	Information program for local governments
TCM 11	Gasoline conservation awareness program (GasCAP) (-expired)
TCM 12	Santa Clara County commuter transportation program* (for Santa Clara only)
TCM 13	Increase bridge tolls to $1.00 on all bridges
TCM 14	Bay Bridge surcharge of $1.00
TCM 15	Increase state gas tax by 9 cents
TCM 16	Implement MTC Resolution 1876, revised - New Rail Starts
TCM 17	Continue post-earthquake transit services
TCM 18	Sacramento-Bay Area Amtrak service
TCM 19	Upgrade CalTrain service
TCM 20	Regional HOV system plan
TCM 21	Regional transit coordination
TCM 22	Expand Regional Transit Connection ticket distribution
TCM 23	Employer Audits
TCM 24	Expand signal timing program to new cities*
TCM 25	Maintain existing signal timing programs*
TCM 26	Incident management on Bay Area freeways
TCM 27	Update MTC guidance on development of local TSM programs
TCM 28	Local Transportation Systems Management (TCM) initiatives

B. STATE TCMs in CAP

TCM 1	Expand employer assistance programs*
TCM 2	Employer-based trip reduction rule*
TCM 3	Improve areawide transit service*
TCM 4	Expedite and expand regional rail agreement
TCM 5	Improve access to rail and ferries
TCM 6	Improve intercity rail service
TCM 7	Improve ferry service
TCM 8	Construct carpool/express buslanes on freeways
TCM 9	Improve bicycle access and facilities*
TCM 10	Youth transportation*
TCM 11	Install freeway traffic operations system (TOS)
TCM 12	Improve arterial traffic management*
TCM 13	Transit use incentives
TCM 14	Vanpool liability insurance
TCM 15	Provide carpool incentives*
TCM 16	Indirect source control program
TCM 17	Conduct public education
TCM 18	Zoning for high densities near transit stations*
TCM 19	Air quality element for general plans*
TCM 20	Conduct demonstration projects
TCM 21	Implement revenue measures
TCM 22	Implement market-based pricing measures
TCM 23	Ozone excess "no drive day" (voluntary)

MTC Checklist for Modeling Consistency for the 1993 CMPs

MTC's goal is to establish a regionally consistent model "set" for application by MTC and the CMAs. This Checklist is intended to guide the CMAs through their model development and consistency certification process by providing an inventory of specific products to be developed and submitted to MTC, and by describing standard practices and assumptions to be followed. Over the next year, the Committee will propose enhancements to this Checklist, such as the definition of specific numeric tolerances for model inputs and outputs, as necessary, to give the CMAs the ability to develop models that are readily certifiable, and to provide the CMAs the ability to assess their own models, or at least some of their model components. Because of the complexity of the topic, however, in specific instances the Checklist may need to be complemented by additional detailed information to explain differences in methodological approach or data. Significant differences will be resolved between MTC and the CMA, taking advantage of the committee and its peer review process.

A. Discuss the General Approach to Travel Demand Modeling by the CMA

Describe the model, and its relationship to the MTC model. If the model is based on MTC's model, describe any adjustments to model constants, coefficients, k-factor or friction factor re-estimation, market segmentation, and trip purposes, etc.

PRODUCT 1: Description of the above.

B. Demographic/Economic/Land Use Forecasts:

Use exact ABAG Projections for other Bay Area counties, and control totals (within 1 percent) for the county for population, households, jobs and employed residents. CMAs may reallocate growth forecasts within their own county in consultation with cities, MTC and ABAG. Projections 92 must be used for all new demographic databases developed for baseline travel demand forecasting purposes after December 31, 1992. CMAs may also, of course, analyze alternative land use scenarios in addition to these forecasts. If a land use based model is utilized, production and attraction comparisons will be made with the MTC model.

PRODUCT 2: Summary sheet comparing ABAG Projections economic and demographic data (cite reference) and CMP input data for population, households, jobs and employed residents for the 9 Bay Area counties for the base and forecast years (Years 1990 and 2000 are preferred), and a statement establishing that the differences between the ABAG variables and those of the CMA input file do not exceed 1 percent at the county level for your county, and that no differences exist for the other 8 counties for a base case scenario.

C. Pricing Assumptions:

Use MTC's auto operating costs, transit fares, and bridge tolls.
PRODUCT 3: Statement establishing satisfaction of the above.

D. Network Assumptions:

Use MTC's regional highway and transit network assumptions for other Bay Area counties. CMAs may include more detailed network definition within their own county in addition to the regional highway and transit networks.
PRODUCT 4: Statement establishing satisfaction of the above.

E. Auto Ownership Assumptions:

Use MTC auto ownership models or forecasts, or submit alternative models to MTC for review and comment.
PRODUCTS:
5) County and district level table(s) showing households by vehicle ownership level (0, 1, 2+ vehicle/household), and autos per household summaries at county and district levels, or autos per worker and total autos by district, and other pertinent auto ownership data if more appropriate.

F. Trip Generation:

Use the regional person trip generation models for home-based work and non-work, and non-home based trips, or submit alternative models to MTC for review and comment. Results may be adjusted sub-regionally through calibration or modal constant adjustments.
PRODUCTS:
6) County and district level table(s) summarizing trip productions and trip attractions out of the trip generation model.
7) Trip rate analysis, including home-based work trips per employed resident, home-based non-work trips per household, and non-home-based trips per total job.
8) Description of sub-regional adjustment factors, if any.

G. Trip Distribution:

Work trip distribution models must be calibrated to the 1980 zone-to-zone or 1990 county-to-county Census Journey-to-Work commuter matrices. 1990 data must be used for all new forecasting databases developed for baseline travel demand forecasting purposes after Dec. 31, 1992. Trip distribution results must be balanced to productions, and attraction balancing problems should be discussed with MTC.

PRODUCTS:

9) County and district level table(s) showing attraction balancing analysis, i.e., comparison of "modeled" attractions from the trip distribution model to "desired" attractions from the trip generation (trip attraction) models.

10) County-to-county level trip tables.

11) District-to-district level trip tables for intra-county trips.

All trip distribution analyses are to be stratified by trip purpose.

H. Mode Choice:

If a logit mode choice model is to be used, MTC's "SW" or "TW" for work trips, and MTC's mode choice models for home-based shop, home-based social recreational and non-home-based trip purposes should be used, or submit alternative methodology for MTC review.

PRODUCTS:

12) County-to-county and district-to-district (intra-county) level table(s) showing mode choice forecasts by trip purpose and travel mode. There is no need to document the county-to-county mode choice forecasts for trips that do not start, end, or pass through the particular county of interest.

13) Vehicle trip tables, county-to-county and intra-county district-to-district, stratified by trip purpose.

I. Traffic Assignment

Use capacity restraint assignment for peak hour traffic assignments, or submit alternative methodology for MTC review.

PRODUCTS:

14) Description of trip assignment methodology for daily and/or peak hour (period) assignments for both transit and highway.

15) Describe peaking factors and vehicle occupancy assumptions utilized.

Alternatively, CMAs may elect to utilize MTC zone to zone vehicle trip tables, adding network and zonal details within the county as appropriate, and then re-run the assignment. In this case, only Products 14 and 15 are applicable.

APPENDIX III

Congestion Management Roadway Network Segmentation

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CMP NETWORK - ARTERIALS

Rationale for Segmentation

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
1st Street					
Market-Harrison					
3rd Street					
Jamestown-Evans *		x	x		
Evans-China Basin		x			
China Basin-Market		x		x	
4th Street					
Market-Harrison					x
Harrison-3rd St					x
5th Street					
Market-Brannan					
6th Street					
Market-Brannan					
7th Street					
Brannan-Market					
8th Street					
Market-Bryant					
9th Street					
Brannan-Market					
10th Street					
Market-Brannan					
19th Avenue/Park Presidio Blvd					
U.S.101-Lake		x			
Lake-Lincoln		x	x		
Lincoln-Sloat			x		
Sloat-J.Serra			x		
Alemany Blvd					
C & C limit-Lyell *		x			
Lyell-Bayshore		x			
Army Street					
Guerrero-Kansas *	x	x			x
Kansas-Bryant *					x
Bryant-3rd St.					x
Bay Street					
Van Ness-Embarcadero					
Bayshore Blvd					
Army-Industrial *			x		x
Industrial- C & C limit			x		x
Beale/Davis					
Clay-Mission					
Brannan Street					
Division-9th St					
6th St-5th St					
Broadway					
Gough-Larkin	x				

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Larkin-Powell (Tunnel)	x	x			
Powell-Montgomery		x			
Montgomery-Embarcadero			x		
Brotherhood Way					
J.Serra-Alemany					
Bryant Street					
Division-4th St					x
4th St-Embarcadero					x
Bush Street					
Masonic-Gough	x				
Gough-Market *	x		x		
Castro/Divisadero Street					
Pine-Geary			x		
Geary-14th St	x		x		
14th St-Market	x		x		
Clay Street					
Kearny-Davis					
Columbus Avenue					
North Point-Greenwich				x	
Greenwich-Montgomery			x		
Drumm Street					
Washington-Market					
Duboce Avenue					
Market-Mission *	x				
Mission-Potrero	x				
The Embarcadero					
Townsend-North Point					
Evans Avenue					
Army-3rd St *					
Fell Street					
Gough-Laguna					x
Laguna-Stanyan					x
Franklin Street					
Market-Pine			x		
Pine-Lombard	x				
Fremont Street					
Harrison-Market *					
Fulton Street					
Masonic-Arguello		x	x		
Arguello-Park Presidio *		x	x		
Geary Blvd					
Market-Gough	x	x			
Gough-Arguello		x			
Arguello-25th Ave			x		
25th Ave-Great Hwy	x		x		

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Geneva Avenue					
Phelan-Cayuga	x				
Cayuga-Paris	x				
Paris-Santos	x				
Golden Gate Avenue					
Masonic-Franklin	x	x	x		
Franklin-Market	x	x	x		
Gough Street					
Pine-Geary			x		
Geary-Golden Gate *	x				
Golden Gate-Market	x				
San Jose Avenue/Guerrero					
Army-29th St	x	x			
29th St-Monterey Blvd					x
Harrison Street					
Embarcadero-1st St *					x
1st St-4th St					x
4th St-8th St					x
8th St-13th St					x
Hayes Street					
Market-Gough					
Howard Street					
Embarcadero-S.Van Ness					
Junipero Serra Blvd					
Sloat-19th Ave *		x	x		
19th Ave-Brotherhood Way			x		
Brotherhood-C & C limit			x		
Kearny Street					
Market-Columbus					
King Street					
6th St-Embarcadero					
Lincoln Blvd/Kezar Drive					
19th Ave-5th Ave	x				
5th Ave-Stanyan	x				
Lombard Street					
Francisco-Van Ness *					
Main Street					
Mission-Market					
Market/Portola					
Sloat-Santa Clara	x				
Santa Clara-Clipper *	Grade Change				
Clipper-Castro	x				
Castro-Guerrero	x				
Guerrero-Van Ness			x	x	
Van Ness-Drumm	x				

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Masonic Avenue					
Pine-Geary			x		
Geary-Page			x		
Mission/Otis					
Embarcadero-3rd St	x				
3rd St-9th St	x				
9th St-14th St	x				
14th St-Army *	x				
Army-Ocean *			x		
Ocean-Sickles	x				
Montgomery Street					
Broadway-Bush					
North Point Street					
Van Ness-Columbus			x		
Columbus-Embarcadero			x		
O'Farrell Street					
Gough-Mason *	x				
Mason-Market	x				
Oak Street					
Stanyan-Divisadero *	x		x		
Divisadero-Laguna	x		x		x
Laguna-Franklin					x
Ocean Avenue					
19th Ave-Miramar *	x				
Miramar-I-280	x				
Pine Street					
Market-Kearny	x				
Kearny-Leavenworth	x				
Leavenworth-Franklin	x				
Franklin-Presidio	x				
Potrero Avenue					
Division-21st St	x			x	
21st St-Army	x			x	
Skyline Drive					
Sloat-City & County limit					
Sloat Boulevard					
Skyline-J.Serra					
Stanyan Street					
Fulton-Turk					
Sutter Street					
Market-Mason *	x				
Mason-Gough	x				
Gough-Divisadero	x		x		
Turk Street					
Market-Hyde	x				
Hyde-Gough	x				

Street Name	Land Use	Speed Limit	Major Cross Street	Change In Volume	Free-way Ramp
Hyde-Gough	x				
Gough-Divisadero	x				
Divisadero-Stanyan			x		
Van Ness Avenue					
Lombard-Washington	Sig.	Syst.	Change		
Washington-GoldenGate Av *	x				
Golden Gate Ave-13th St *					x
13th St-Army					x
Washington Street					
Kearny-Drumm					
West Portal Avenue					
Sloat-Ulloa					

* indicates change in segment boundary.

CMP NETWORK - FREEWAYS

Rationale for Segmentation

Freeway	Split	Off-ramp	On-ramp
I-280			
C & C limit- U.S. 101	x		
101/280 -6th/Brannan	x		
U.S.101			
C & C limit- I-280	x		
I-280- I-80	x		
I-80- Fell/Laguna	x		
I-80			
U.S. 101- Fremont		x	
Fremont- Treasure Island		x	

APPENDIX IV

Results of Level of Service Monitoring
July/August 1993

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TABLE I

CMP - LM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
1st Street	Market	Harrison	3	S	0.47		*	15.1	C
3rd Street	Jamestown	Evans	3	N	1.61		*	25.4	B
	Evans	Jamestown	3	S	1.61		*	22.3	C
	Evans	China Basin	3	N	2.40	10.3	D	24.0	B
	China Basin	Evans	3	S	2.40	10.3	D	24.1	B
	China Basin	Market	3	N	1.00	12.1	D	12.1	D
4th St/ Stockton	O'farrell	Harrison	3	S			*	11.6	D
	Harrison	3rd Street	3	S	0.76		*	15.0	C
5th Street	Market	Brannan	3	S	0.72	7.9	E	11.6	C
	Brannan	Market	3	N	0.72	7.9	E	10.5	D
6th Street	Market	Brannan	3	S	0.71		*	22.4	B
	Brannan	Market	3	N	0.71		*	13.8	C
7th Street	Brannan	Market	3	N	0.72	8.9	E	13.9	C
8th Street	Market	Bryant	3	S	0.59		*	17.1	C
9th Street	Brannan	Market	3	N	0.72	9.9	D	12.5	D
10th Street	Market	Brannan	3	S	0.71	12.1	D	20.5	B
19th Avenue/ Park Presidio	U.S. 101	Lake	1	S	1.54		*	38.3	A
	Lake	U.S. 101	1	N	1.57		*	38.8	A
	Lake	Lincoln	3	S	1.83		*	20.9	B
	Lincoln	Lake	3	N	1.83		*	21.9	B
	Lincoln	Sloat	3	S	2.12	11.1	D	17.2	C
	Sloat	Lincoln	3	N	2.12	11.1	D	19.2	B
	Sloat	J. Serra	3	S	1.25		*	20.2	B
	J. Serra	Sloat	3	N	1.25		*	19.2	B
Alemany	County Line	Lyell	3	E	2.79		*	25.6	B
	Lyell	County Line	3	W	2.79		*	25.6	B
	Lyell	Bayshore	3	E	1.42		*	28.5	A
	Bayshore	Lyell	3	W	1.42		*	35.4	A
Army	Guerrero	SVN	3	E	0.36		*	16.1	C
	SVN	Guerrero	3	W	0.36	5.8	F	17.3	C
	SVN	Evans	3	E	1.02		*	21.0	B
	Evans	SVN	3	W	1.02		*	20.6	B
	Evans	Penn.	3	E			*		-
	Penn.	Evans	3	W			*		-
	Penn.	3rd Street	3	E			*		-
	3rd Street	Penn.	3	W			*		-

CMP - AM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
	Guerrero	Bryant	3	E	0.75			19.0	B
	Bryant	Guerrero	3	W	0.75			19.6	B
	Kansas	Bryant	3	E	0.37			17.7	C
	Bryant	Kansas	3	W	0.37			19.9	B
	Kansas	3rd Street	3	E	0.79			17.6	C
	3rd Street	Kansas	3	W	0.79			19.4	B
Bay	Van Ness	Embarcadero	3	E	0.71	12.7	D	22.4	B
	Embarcadero	Van Ness	3	W	0.71	12.7	D	19.7	B
Bayshore	Oakdale	I-280	3	S		7.9	E		-
	I-280	Oakdale	3	N		7.9	E		-
	I-280	Silver	3	S			*		-
	Silver	I-280	3	N			*		-
	Silver	Paul	3	S		4.9	F		-
	Paul	Silver	3	N		4.9	F		-
	Paul	County Line	3	S			*		-
	County Line	Paul	3	N			*		-
	Army	Industrial	3	S	0.83			21.0	B
	Industrial	Army	3	N	0.83			20.2	B
	Industrial	County Line	3	S	2.24			27.4	A
	County Line	Industrial	3	N	2.24			20.9	B
Beale/Davis	Clay	Mission	3	S	0.31		*	11.3	D
Brannan	Division	9th Street	3	E	0.08		*	14.4	D
	9th Street	Division	3	W	0.08		*	13.7	C
	6th Street	5th Street	3	E	0.09		*	7.7	E
	5th Street	6th Street	3	W	0.09		*	8.9	E
Broadway	Gough	Larkin	3	E	0.57		*	19.2	B
	Larkin	Gough	3	W	0.27		*	10.6	D
	Larkin	Powell	1	E	0.54		*	22.5	B
	Powell	Larkin	1	W	0.54		*	35.6	A
	Powell	Montgomery	3	E	0.34		*	16.8	C
	Montgomery	Powell	3	W	0.34		*	15.2	C
	Montgomery	Embarcdero	3	E	0.35		*	11.2	D
	Embarcadero	Montgomery	3	W	0.35		*	17.7	C
Bryant	Division	4th Street	3	E	0.99	7.7	E	12.2	D
	4th Street	Embarcadero	3	E	0.78		*	21.8	B
Bush	Masonic	Gough	3	E	1.23		*	17.3	C
	Gough	Market	3	E	1.36	3.2	F	10.9	D
Castro/	Pine	Geary	3	S	0.27		*	14.2	C
Divisadero	Geary	Pine	3	N	0.27		*	10.8	D
	Geary	14th	3	S	1.16		*	14.8	C
	14th	Geary	3	N	1.16	4.5	F	14.0	C

CMP - AM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
Clay	Kearny	Davis	3	E	0.22	11.7	D	3.7	F
Columbus	North Point	Greenwich	3	S	0.50		*	18.6	C
	Greenwich	North Point	3	N	0.50		*	22.6	B
	Greenwich	Montgomery	3	S	0.67		*	16.3	C
	Montgomery	Greenwich	3	N	0.67		*	14.0	C
Doyle Drive	Lyon/Richerson	I-101 Split	1	W	1.39			47.7	A
	I-101 Split	Lyon/Richerso	1	E	1.39			34.2	B
	Golden Gate	I-101 Split	1	E	0.74			45.2	A
	I-101 Split	Golden Gate	1	W	0.66			43.3	A
Drumm	Washington	Market	3	S	0.23	9.5	D	9.1	D
	Market	Washington	3	N	0.23		*	19.9	B
Duboce/	Market	Mission	3	E	0.34		*	7.7	E
Division	Mission	Market	3	W	0.34		*	10.7	D
	Mission	Potrero	3	E	0.64	9.9	D	12.0	D
	Potrero	Mission	3	W	0.64	9.9	D	17.1	C
Embarcadero	Townsend	North Point	3	N			*	21.2	B
	North Point	Townsend	3	S			*	15.2	C
Evans	Army	Toland	3	S	0.18		*	14.3	C
	Toland	Army	3	N	0.18		*	12.1	D
	Toland	3rd Street	3	S	0.53		*	17.0	C
	3rd Street	Toland	3	N	0.53		*	25.9	A
	Army	3rd Street	3	S	0.71			16.3	C
	3rd Street	Army	3	N	0.71			19.9	B
Fell	Gough	Market	3	E	0.30		*	11.6	D
	Gough	Laguna	3	W	0.20		*	26.7	A
	Laguna	Stanyan	3	W	1.55		*	19.0	B
Franklin	Market	Pine	3	N	1.06	8.5	E	13.3	C
	Pine	Lombard	3	N	0.82		*	14.0	C
Fremont	Harrison	Market	3	N	0.85	16.8	C	17.0	C
Fulton	Park Pres.	10th Avenue	3	E	0.20		*	16.7	C
	10th Avenue	Park Pres.	3	W	0.20		*	14.2	C
	10th Avenue	Arguello	3	E	0.53		*	22.4	B
	Arguello	10th Avenue	3	W	0.53		*	22.0	B
	Arguello	Masonic	3	E	0.66	9.8	D	18.6	C
	Masonic	Arguello	3	W	0.66		*	15.9	C

CMP - AM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
Geary	Great Hwy.	25th Avenue	3	E	1.47		*	24.2	B
	25th Avenue	Great Hwy.	3	W	1.47		*	28.3	A
	25th Avenue	Arguello	3	E			*	21.6	B
	Arguello	25th Avenue	3	W			*	21.3	B
	Arguello	Gough	3	E			*	25.3	A
	Gough	Arguello	3	W			*	23.8	B
	Market	Gough	3	W			*	12.3	D
Geneva	Phelan	Cayuga	3	E	0.57		*	15.0	C
	Cayuga	Phelan	3	W	0.57		*	12.3	D
	Cayuga	Paris	3	E	0.40	10.4	D	11.7	D
	Paris	Cayuga	3	W	0.40	10.4	D	11.6	D
	Paris	Santos	3	E	1.18		*	29.7	A
	Santos	Paris	3	W	1.18		*	27.4	A
Golden Gate	Masonic	Franklin	3	E	1.36		*	19.3	B
	Franklin	Market	3	E		12.2	D	16.9	C
Gough	Pine	Geary	3	S	0.27	9.5	D	25.6	A
	Geary	Golden Gate	3	S	0.34		*	20.1	B
	Golden Gate	Market	3	S	0.57	8.3	E	12.8	D
Guerrero/ San Jose	Army	29th Street	3	S	0.10		*	26.3	A
	29th Street	Army	3	N	0.10	6.2	F	19.3	B
	29th Street	Monterey	1	S	0.97		*	23.7	B
	Monterey	29th Street	1	N	1.24		*	17.3	C
Harrison	Embarcadero	1st Street	3	W	0.84			34.8	A
	1st Street	4th Street	3	W	0.56			27.6	A
	4th Street	8th Street	3	W	0.68			28.9	A
	8th Street	Division	3	W	0.40			14.4	C
	Embarcadero	2nd Street	3	W	0.49		*		-
	2nd Street	4th Street	3	W	0.35		*		-
	4th Street	8th Street	3	W	0.69		*		-
	8th Street	Division	3	W	0.40		*		-
Hayes	Market	Gough	3	W	0.38		*	10.2	D
Howard	Embarcadero	SVN	3	W	2.20		*	14.9	C
J. Serra	Sloat	19th	1	S	1.25		*	32.4	B
	19th	Sloat	1	N	1.25		*	27.0	C
	19th	Brotherhood	1	S	0.30		*	19.9	B
	Brotherhood	19th	1	N	0.30	9.7	D	23.8	C
	Brotherhood	County Line	1	S	0.37		*	41.9	A
	County Line	Brotherhood	1	N	0.37		*	40.4	A
Kearny	Market	Columbus	3	N	0.63	6.3	F	13.7	C

CMP - AM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
King	7th Street	2nd Street	3	E			*	12.4	D
	2nd Street	7th Street	3	W			*	13.9	C
Lincoln/	19th Avenue	5th Ave.	3	E	0.83		*	22.6	B
Kezar	5th Ave.	19th Avenue	3	W	0.83		*	25.2	A
	5th Ave.	Stanyan	3	E	0.69		*	10.7	D
	Stanyan	5th Ave.	3	W	0.69		*	31.7	A
Lombard	Francisco	Broderick	3	E	0.16	7.6	E		-
	Broderick	Francisco	3	W	0.16		*		-
	Broderick	Pierce	3	E	0.31		*		-
	Pierce	Broderick	3	W	0.31		*		-
	Pierce	Laguna	3	E	0.45		*		-
	Laguna	Pierce	3	W	0.45		*		-
	Laguna	Van Ness	3	E	0.33		*		-
	Van Ness	Laguna	3	W	0.33		*		-
	Francisco	Van Ness	3	E	1.28			22.2	B
	Van Ness	Francisco	3	W	1.28			19.7	B
Main	Mission	Market	3	N	0.13		*	9.9	D
Market/	Sloat	Santa Clara	3	E	0.41		*	16.0	C
Portola	Santa Clara	Sloat	3	W	0.41		*	13.2	C
	Santa Clara	Clipper	3	E	2.45		*	24.1	B
	Clipper	Santa Clara	3	W	2.45		*	22.8	B
	Clipper	Castro	3	E	1.67	7.0	F	33.0	A
	Castro	Clipper	3	W	1.67		*	28.0	B
	Castro	Guerrero	3	E	0.80	8.7	E	20.0	B
	Guerrero	Castro	3	W	0.80		*	18.8	B
	Guerrero	Van Ness	3	E	0.22	8.3	E	16.3	C
	Van Ness	Guerrero	3	W	0.22	8.3	E	17.8	C
	Van Ness	Drumm	3	E	1.76	9.6	D	14.4	C
	Drumm	Van Ness	3	W	1.76	9.6	D	15.3	C
Masonic	Pine	Geary	3	S	0.27	8.5	E	11.2	D
	Geary	Pine	3	N	0.27	8.5	E	14.6	C
	Geary	Page	3	S	0.73	10.0	D	16.4	C
	Page	Geary	3	N	0.73	10.0	D	13.1	C
Mission/	Embarcadero	3rd Street	3	S		9.7	D	8.0	E
Otis	3rd Street	Embarcadero	3	N		9.7	D	8.9	E
	3rd Street	9th Street	3	S			*	16.9	C
	9th Street	3rd Street	3	N			*	13.7	C
	9th Street	14th Street	3	S		9.7	D	12.8	D
	14th Street	9th Street	3	N			*	12.0	D
	14th Street	Army	3	S		10.9	D	17.9	C
	Army	14th Street	3	N		10.9	D	19.8	B
	Army	Ocean	3	S	1.94		*	17.6	C
	Ocean	Army	3	N	1.94		*	20.3	B

CMP - AM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
	Ocean	Sickles	3	S	1.88		*	20.8	B
	Sickles	Ocean	3	N	1.88		*	21.1	B
Montgomery	Broadway	Bush	3	S	0.38	6.2	F	6.5	F
North Point	Van Ness	Columbus	3	E	0.38		*	15.2	C
	Columbus	Van Ness	3	W	0.38		*	15.3	C
	Columbus	Embarcadero	3	E			*	14.9	C
	Embarcadero	Columbus	3	W			*	16.0	C
Oak	Stanyan	Lyon	3	E	0.64		*		-
	Lyon	Divisadero	3	E	0.27	7.5			-
	Divisadero	Fillmore	3	E	0.36		*		-
	Fillmore	Laguna	3	E	0.27	8.2			-
	Laguna	Franklin	3	E			*		-
	Stanyan	Divisadero	3	E	0.91			23.1	B
	Divisadero	Laguna	3	E	0.63			21.7	B
	Laguna	Franklin	3	E			*	20	B
Ocean	19th Avenue	Miramar	3	E	1.10		*	19.5	B
	Miramar	19th Avenue	3	W	1.10		*	15.4	C
	Miramar	I-280	3	E	0.66		*		
	I-280	Miramar	3	W	0.66		*	9.4	D
O'Farrell	Gough	Mason	3	E	0.93		*	16.6	C
	Mason	Market	3	E	0.27		*	18.7	C
Pine	Market	Kearny	3	W	0.38	4.6	F	9.9	D
	Kearny	Leavenworth	3	W	0.63		*	16.2	C
	Leavenworth	Franklin	3	W	0.46		*	17.2	C
	Franklin	Presidio	3	W	1.26		*	20.0	B
Potrero	Division	21st Street	3	S	0.80		*	24.8	B
	21st Street	Division	3	N	0.80		*	21.4	B
	21st Street	Army	3	S			*	20.1	B
	Army	21st Street	3	N			*	25.2	A
Skyline	Sloat	County Line	3	S	2.32		*	41.6	A
	County Line	Sloat	3	N	1.92		*	43.7	A
Sloat	Skyline	J. Serra	3	E	1.36		*	19.8	D
	J. Serra	Skyline	3	W	1.34		*	23.3	C
Stanyan	Fulton	Turk	3	N	0.19		*	12.2	D
	Turk	Fulton	3	S	0.19		*	11.6	D
Sutter	Market	Mason	3	W	1.08		*	11.6	D
	Mason	Gough	3	W	0.87	9.0	D	12.3	D
	Gough	Divisadero	3	W	0.82		*	14.1	C
	Divisadero	Gough	3	E	0.82		*	13.9	C

CMP - AM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
Turk	Market	Hyde	3	W	0.37		*	10.9	D
	Hyde	Gough	3	W	0.45		*	14.1	C
	Gough	Divisadero	3	W	0.82		*	22.1	B
	Divisadero	Stanyan	3	W	0.91		*	17.1	C
	Stanyan	Divisadero	3	E	0.91		*	21.0	B
Van Ness/ SVN	Lombard	Washington	3	S	0.58	4.5	F	18.2	C
	Washington	Lombard	3	N	0.58		*	11.9	D
	Washington	Golden Gate	3	S	0.51		*	15.0	C
	Golden Gate	Washington	3	N	0.51		*	13.6	C
	Golden Gate	13th	3	S	1.21		*	17.3	C
	13th	Golden gate	3	N			*	15.9	C
	13th	Army	3	S	1.39	12.6	D	15.7	C
	Army	Market	3	N	1.39		*	20.4	B
Washington	Drumm	Kearny	3	W	0.28		*	14.2	C
West Portal	Ulloa	Sloat	3	S	0.38		*	16.1	C
	Sloat	Ulloa	3	N	0.38		*	17.8	C

NOTE: Average Speed (AvSp) is an indication of the average travel time. All sample times for each segment were averaged to obtain the AvSp.

* indicates the Level of Service 'C' or better for that particular segment

- indicates an 'overlap' in segments because of changes in the segmentation boundaries from 1991.

TABLE II

CMP - PM Base	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
1st Street	Market	Harrison	3	S	0.47	1.2	F	6.3	F
3rd Street	Jamestown	Evans	3	N	1.56		*	18.5	C
	Evans	Jamestown	3	S	1.56		*	17.6	C
	Evans	China Basin	3	E	2.40	10.3	D	18.5	C
	China Basin	Evans	3	S	2.40	10.3	D	17.0	C
	China Basin	Market	3	E	1.00	12.1	D	8.8	D
4th St/	Market	Harrison	3	S	0.47	13.9	C	12.4	D ←
Stockton	Harrison	3rd Street	3	S	0.76		*	23.0	B
5th Street	Market	Brannan	3	S	0.72	7.9	E	13.5	C
	Brannan	Market	3	N	0.72	7.9	E	12.7	D
6th Street	Market	Brannan	3	S	0.71	6.7	F	11.5	D
	Brannan	Market	3	N	0.71		*	12.7	D
7th Street	Brannan	Market	3	N	0.72	8.9	E	16.8	C
8th Street	Market	Bryant	3	S	0.59		*	15.8	C
9th Street	Brannan	Market	3	N	0.72	9.9	D	12.4	D
10th Street	Market	Brannan	3	S	0.71	12.1	D	20.5	B
19th Avenue/	U.S. 101	Lake	1	S	1.54		*	36.4	A
Park Presidio	Lake	U.S. 101	1	N	1.57		*	35.9	A
	Lake	Lincoln	3	S	1.83		*	26.4	A
	Lincoln	Lake	3	N	1.83		*	25.4	A
	Sloat	Lincoln	3	N	2.12	11.1	D	21.9	B
	Lincoln	Sloat	3	S	2.12	11.1	D	21.0	B
	J. Serra	Sloat	3	N	1.25		*	18.4	C
	Sloat	J. Serra	3	S	1.25		*	17.5	C
Alemany	County Line	Lyell	3	E	2.79		*	29.5	B
	Lyell	County Line	3	W	2.79		*	22.1	C
	Lyell	Bayshore	3	E	1.42		*	32.9	A
	Bayshore	Lyell	3	W	1.42	4.6	F	30.8	A
Army	Guerrero	Bryant	3	E	0.75			20.7	B
	Bryant	Guerrero	3	W	0.75			16.5	C
	Kansas	Bryant	3	E	0.37			17.5	C
	Bryant	Kansas	3	W	0.37			26.7	B
	Kansas	3rd Street	3	E	0.79			17.3	C
	3rd Street	Kansas	3	W	0.79			16.3	C
	Guerrero	SVN	3	E	0.36		*	14.5	C
	SVN	Guerrero	3	W	0.36	5.8	F	17.8	C
	SVN	Evans	3	E	1.02		*	19.6	B

CMP - PM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
	Evans	SVN	3	W	1.02		*	20.5	B
	Evans	Penn.	3	E			*		
	Penn.	Evans	3	W		6.5	F	16.6	C
	Penn.	3rd Street	3	E			*		
	3rd Street	Penn.	3	W			*	14.8	C
Bay	Van Ness	Embarcadero	3	E	0.71	12.7	D	16.8	C
	Embarcadero	Van Ness	3	W	0.71	12.7	D	12.0	D
Bayshore	Oakdale	I-280	3	S		7.9	E		-
	I-280	Oakdale	3	N		7.9	E		-
	I-280	Silver	3	S			*		-
	Silver	I-280	3	N			*		-
	Silver	Paul	3	S			*		-
	Paul	Silver	3	N			*		-
	Paul	County Line	3	S			*		-
	County Line	Paul	3	N			*		-
	Army	Industrial	3	S	0.83			21.0	B
	Industrial	Army	3	N	0.83			26.4	A
	Industrial	County Line	3	S	2.24			22.0	B
	County Line	Industrial	3	N	2.24			22.6	B
Beale/Davis	Clay	Mission	3	S	0.31		*	13.4	C
Brannan	Division	9th Street	3	E	0.08		*	25.4	A
	9th Street	Division	3	W	0.08		*	13.1	C
	6th Street	5th Street	3	E	0.09		*	14.3	C
	5th Street	6th Street	3	W	0.09		*	11.7	D
Broadway	Gough	Larkin	3	E	0.57		*	14.6	C
	Larkin	Gough	3	W	0.27	7.7	E	14.6	C
	Larkin	Powell	1	E	0.54		*	38.9	A
	Powell	Larkin	1	W	0.54		*	24.7	C
	Powell	Montgomery	3	E	0.34		*	16.3	C
	Montgomery	Powell	3	W	0.34	6.2	F	8.4	E
	Montgomery	Embarcadero	3	E	0.35		*	13.1	C
	Embarcadero	Montgomery	3	W	0.35		*	15.4	C
Bryant	Division	4th Street	3	E	0.99	7.7	E	11.8	D
	4th Street	Embarcadero	3	E	0.78		*	13.2	C
Bush	Masonic	Gough	3	E	1.23		*	20.0	B
	Gough	Market	3	E	1.36	3.2	F	10.1	D
Castro/	Pine	Geary	3	S	0.27		*	11.6	D
Divisadero	Geary	Pine	3	N	0.27		*	8.4	E
	Geary	14th	3	S	1.16		*	15.7	C
	14th	Geary	3	N	1.16	4.5	F	12.8	D
	14th Street	Market	3	S	0.34		*	13.8	C
	Market	14th Street	3	N	0.34	7.7	E	16.7	C

CMP - PM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
Clay	Kearny	Davis	3	E	0.22	11.7	D	7.0	E
Columbus	North Point	Greenwich	3	S	0.50		*	15.2	C
	Greenwich	North Point	3	N	0.50		*	13.4	C
	Greenwich	Montgomery	3	S	0.67	6.3	F	16.0	C
	Montgomery	Greenwich	3	N	0.67	6.3	F	12.8	D
Doyle Drive	Lyon/Richerson	I-101 Split	1	W	1.39			43.9	A
	I-101 Split	Lyon/Richerson	1	E	1.39			32.3	B
	Golden Gate	I-101 Split	1	E	0.74			55.3	A
	I-101 Split	Golden Gate	1	W	0.66			32.6	B
Drumm	Washington	Market	3	S	0.23		*	9.3	D
	Market	Washington	3	N	0.23	6.8	F	12.8	D
Duboce/ Division	Market	Mission	3	E	0.34		*	10.0	D
	Mission	Market	3	W	0.34	6.3	F	6.2	F
	Mission	Potrero	3	E	0.64	9.9	D	14.1	C
	Potrero	Mission	3	W	0.64	9.9	D	16.4	C
Embarcadero	North Point	Townsend	3	S			*	9.0	D
	Townsend	North Point	3	N			*	16.7	C
Evans	Army	Toland	3	S	0.18		*	20.4	B
	Toland	Army	3	N	0.18	5.1	F	11.6	D
	Toland	3rd Street	3	S	0.53		*	21.8	B
	3rd Street	Toland	3	N	0.53		*	27.6	A
	Army	3rd Street	3	S	0.71			21.4	B
	3rd Street	Army	3	N	0.71			20.3	B
Fell	Gough	Market	3	E	0.30		*	13.5	C
	Gough	Laguna	3	W	0.28	7.6	E	9.1	D
	Laguna	Stanyan	3	W	1.55		*	20.7	B
Franklin	Market	Pine	3	N	1.06	8.5	E	18.8	C
	Pine	Lombard	3	N	0.82		*	16.4	C
Fremont	Harrison	Market	3	N	0.85		*	9.3	D
Fulton	Park P.	Arguello	3	E	0.73		*	20.1	B
	Arguello	Park P.	3	W	0.73		*	15.9	C
	Arguello	Masonic	3	E	0.66	9.8	D	13.2	C
	Masonic	Arguello	3	W	0.66		*	18.9	C
Geary	Great Hwy.	25th Avenue	3	E	1.47		*	26.2	A
	25th Avenue	Great Hwy.	3	W	1.47		*	23.9	B
	25th Avenue	Arguello	3	E			*	21.5	B
	Arguello	25th Avenue	3	W		11.3	D	20.3	B
	Arguello	Gough	3	E		11.3	D	22.6	B
	Gough	Arguello	3	W			*	23.1	B
	Market	Gough	3	W		6.7	F	9.9	D

CMP - PM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
Geneva	Phelan	Cayuga	3	E	0.57		*	12.0	D
	Cayuga	Phelan	3	W	0.57	6.7	F	10.4	D
	Cayuga	Paris	3	E	0.40	10.4	D	12.1	D
	Paris	Cayuga	3	W	0.40	10.4	D	12.3	D
	Paris	Santos	3	E	1.18		*	20.5	B
	Santos	Paris	3	W	1.18		*	22.6	B
Golden Gate	Masonic	Franklin	3	E	1.36		*	20.4	B
	Franklin	Market	3	E		12.2	D	15.2	C
Gough	Pine	Geary	3	S	0.27	9.5	D	21.8	B
	Geary	Golden Gate	3	S	0.34		*	17.1	C
	Golden Gate	Market	3	S	0.57	8.3	E	16.4	C
Guerrero/	Army	29th Street	3	S	0.10		*	24.0	B
San Jose	29th Street	Army	3	N	0.10		*	12.6	D
	29th Street	Monterey	1	S	0.97		*	21.6	D
	Monterey	29th Street	1	N	1.24		*	30.8	B
Harrison	Embarcadero	1st Street	3	W	0.84			12.1	D
	1st Street	4th Street	3	W	0.56			20.5	B
	4th Street	8th Street	3	W	0.68			19.1	B
	8th Street	Division	3	W	0.40			13.6	C
	Embarcadero	2nd Street	3	W	0.49	5.7	F		-
	2nd Street	4th Street	3	W	0.35	2.9	F		-
	4th Street	8th Street	3	W	0.69	12.7	D		-
	8th Street	Division	3	W	0.40		*		-
Hayes	Market	Gough	3	W	0.38	5.6	F	11.7	D
Howard	Embarcadero	S. Van Ness	3	W	2.20	5.4	F	13.6	C
J. Serra	Sloat	19th	1	S	0.91		*	18.0	D
	19th	Sloat	1	N	0.91		*	20.5	D
	19th	Brotherhood	1	S	0.63		*	22.1	C
	Brotherhood	19th	1	N	0.63		*	19.1	D
	Brotherhood	County Line	1	S	0.37		*	48.1	A
	County Line	Brotherhood	1	N	0.37		*	40.4	A
Kearny	Market	Columbus	3	N	0.63	6.3	F	12.9	D
King	7th Street	2nd Street	3	E			*	11.8	D
	2nd Street	7th Street	3	W			*	16.9	C
Lincoln/	19th Avenue	5th Ave.	3	E	0.83		*	16.4	C
Kezar	5th Ave.	19th Avenue	3	W	0.83	11.3	D	20.8	B
	5th Ave.	Stanyan	3	E	0.69		*	22.8	B
	Stanyan	5th Ave.	3	W	0.69		*	21.3	B

CMP - PM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
Lombard	Francisco	Broderick	3	E	0.16		*		-
	Broderick	Francisco	3	W	0.16		*		-
	Broderick	Pierce	3	E	0.31		*		-
	Pierce	Broderick	3	W	0.31		*		-
	Pierce	Laguna	3	E	0.45		*		-
	Laguna	Pierce	3	W	0.45	7.0	F		-
	Laguna	Van Ness	3	E	0.33		*		-
	Van Ness	Laguna	3	W	0.33	8.6	E		-
	Francisco	Van Ness	3	E	1.28			16.4	C
	Van Ness	Francisco	3	W	1.28			20.5	B
Main	Mission	Market	3	N	0.13		*	9.8	D
Market/	Sloat	Santa Clara	3	E	0.41		*	16.5	C
Portola	Santa Clara	Sloat	3	W	0.41	11.8	D	22.2	B
	Santa Clara	Clipper	3	E	2.45		*	23.6	B
	Clipper	Santa Clara	3	W	2.45		*	19.6	B
	Clipper	Castro	3	E	1.67		*	34.1	A
	Castro	Clipper	3	W	1.67		*	27.0	A
	Castro	Guerrero	3	E	0.80		*	15.0	C
	Guerrero	Castro	3	W	0.80		*	16.5	C
	Guerrero	Van Ness	3	E	0.42	8.3	E	17.9	C
	Van Ness	Guerrero	3	W	0.42	8.3	E	12.5	D
	Van Ness	Druma	3	E	1.76	9.6	D	12.9	D
	Druma	Van Ness	3	W	1.76	9.6	D	15.5	C
Masonic	Pine	Geary	3	S	0.27	8.5	E	9.3	D
	Geary	Pine	3	N	0.27	8.5	E	21.5	B
	Geary	Page	3	S	0.73	10.0	D	13.4	C
	Page	Geary	3	N	0.73	10.0	D	13.6	C
Mission/	Embarcadero	3rd Street	3	S		9.7	D	7.6	D
Otis	3rd Street	Embarcadero	3	N		9.7	D	15.9	C
	3rd Street	9th Street	3	S			*	19.1	B
	9th Street	3rd Street	3	N			*	19.9	B
	9th Street	14th Street	3	S		9.7	D	14.9	C
	14th Street	9th Street	3	N			*	12.2	D
	14th Street	Army	3	S		10.9	D	14.9	C
	Army	14th Street	3	N		10.9	D	10.5	D
	Army	Ocean	3	S	1.94		*	15.6	C
	Ocean	Army	3	N	1.94		*	17.3	C
	Ocean	Sickles	3	S	1.88		*	15.1	C
	Sickles	Ocean	3	N	1.88		*	18.1	C
Montgomery	Broadway	Bush	3	S	0.38	6.2	F	2.4	F
North Point	Van Ness	Columbus	3	E	0.38		*	15.4	C
	Columbus	Van Ness	3	W	0.38	8.5	E	20.9	B

CMP - PM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
	Columbus	Embarcadero	3	E			*	14.5	C
	Embarcadero	Columbus	3	W			*	16.9	C
Oak	Stanyan	Lyon	3	E	0.64		*		-
	Lyon	Divisadero	3	E	0.27	7.5	E		-
	Divisadero	Fillmore	3	E	0.36		*		-
	Fillmore	Laguna	3	E	0.27	8.2	E		-
	Laguna	Franklin	3	E	0.27		*	23.1	B
	Stanyan	Divisadero	3	E	0.91			21.6	B
	Division	Laguna	3	E	0.63			20.1	B
	Laguna	Franklin	3	E	0.27			23.1	B
Ocean	19th Avenue	Miramar	3	E	1.10		*	17.1	C
	Miramar	19th Avenue	3	W	1.10		*	14.6	C
	Miramar	I-280	3	E	0.66	0.8	F	21.0	B
	I-280	Miramar	3	W	0.66	6.1	F	14.9	C
O'Farrell	Gough	Mason	3	E	0.93	5.7	F	13.7	C
	Mason	Market	3	E	0.27	6.9	F	7.9	E
Pine	Market	Kearny	3	W	0.38	4.6	F	10.8	D
	Kearny	Leavenworth	3	W	0.63		*	12.9	D
	Leavenworth	Franklin	3	W	0.46	4.8	F	13.2	C
	Franklin	Presidio	3	W	1.26		*	15.3	C
Potrero	Division	21st Street	3	S	0.80		*	22.6	B
	21st Street	Division	3	N	0.80		*	21.4	B
	21st Street	Army	3	S		4.8	F	13.7	C
	Army	21st Street	3	N			*	23.8	B
Skyline	Sloat	County Line	3	S	2.32		*	42.1	A
	County Line	Sloat	3	N	1.92		*	44.9	A
Sloat	Skyline	J. Serra	3	E	1.36		*	19.2	D
	J. Serra	Skyline	3	W	1.34		*	23.2	C
Stanyan	Fulton	Turk	3	N	0.19	12.1	D	11.8	D
	Turk	Fulton	3	S	0.19		*	7.6	D
Sutter	Market	Mason	3	W	1.08		*	7.3	E
	Mason	Gough	3	W	0.87	9.0	D	17.0	C
	Gough	Divisadero	3	W	0.82		*	16.6	C
	Divisadero	Gough	3	E	0.82		*	15.4	C
Turk	Market	Hyde	3	W	0.37		*	14.9	C
	Hyde	Gough	3	W	0.45	8.7	E	14.9	C
	Gough	Divisadero	3	W	0.82		*	27.1	A
	Divisadero	Stanyan	3	W	0.91		*	19.2	B
	Stanyan	Divisadero	3	E	0.91		*	14.9	C

CMP - PM Name	From	To	Class	Travel Dir.	Length (mi)	AvSp 91	LOS 91	AvSp 92/3	LOS 92/3
Van Ness/	Lombard	Washington	3	S	0.58		*	17.7	C
SVN	Washington	Lombard	3	N	0.58		*	13.2	C
	Washington	Golden Gate	3	S	0.51	4.6	F	11.7	D
	Golden Gate	Washington	3	N	0.51		*	15.1	C
	Golden Gate	13th	3	S	1.21	4.6	F	6.9	F
	13th	Golden Gate	3	N	1.21		*	13.7	C
	13th	Army	3	S	1.39	12.6		18.2	C
	Army	13th	3	N	1.39			22.4	B
Washington	Drumm	Kearny	3	W	0.28		*	10.3	D
West Portal	Ulloa	Sloat	3	S	0.38		*	18.2	C
	Sloat	Ulloa	3	N	0.38		*	17.1	C

NOTE: Average Speed (AvSp) is an indication of the average travel time. All sample times for each segment were averaged to obtain the AvSp.

* indicates the Level of Service 'C' or better for that particular segment.

- indicates an 'overlap' in the segments because of the change in the segmentation boundaries from 1991.

← no congestion becasue of no back up on the freeway I-80 East (Bay Bridge).

TABLE III

CMP FREEWAY ROUTES AM

INBOUND

Route	From	To	Travel Direction	Length (mi)	AvSp 91	LOS 91	AvSp 93	LOS 93
I-280	C & C Limit	US 101	E	4.14	22.9	F	43.0	E
	U.S. 101	6th/Brannan	NE	3.36	section closed		29.1	F *
US 101	C & C Limit	I-280	N	1.8	10.9	F	47.2	D
	I-280	I-80	N	2.3	21.4	F	21.2	F
	I-80	Fell/Laguna	NW	1.6	18.7	F	45.4	E
I-80	Treasure I.	Fremont	SW	2.13	17.5	F	32.2	E
	Fremont	US 101	SW	2.13	48.1	D	33.3	E

OUTBOUND

Route	From	To	Travel Direction	Length (mi)	AvSp 91	LOS 91	AvSp 93.0	LOS 93
I-280	6th/Brannan	US 101	W	3.4	section closed		51.9	D *
	US 101	C & C Limit	SW	4.1	55.7	C	57.5	B
US 101	Fell/Laguna	I-80	S	1.3	13.5	F	17.9	F
	I-80	I-280	S	2.3	45.8	E	53.6	D
	I-280	C & C Limit	S	2.1	53.3	D	45.6	E
I-80	US 101	Fremont	N	2.13	18.6	F	53.6	D
	Fremont	Treasure I.	NE	2.13	50.6	D	50.8	D

* indicates that these segments were under construction during the travel time.

TABLE IV

C&P FREEWAY ROUTES PM

INBOUND

Route	From	To	Travel Direction	Length (mi)	AvSp 91	LOS 91	AvSp 93	LOS 93
I-280	C & C Limit	US 101	E	4.14	54.9	C	59.1	B
	U.S. 101	6th/Brannan	NE	3.36	section closed		46.3	D *
US 101	C & C Limit	I-280	N	1.81	20.6	F	72.4	A
	I-280	I-80	N	2.28	24.6	F	45.8	E
	I-80	Bell/Laguna	NW	1.64	12.2	F	15.3	F
I-80	Treasure I.	Fremont	S	2.13	27.5	F	26.3	F
	Fremont	US 101	SW	2.13	18.6	F	21.5	F

OUTBOUND

Route	From	To	Travel Direction	Length (mi)	AvSp 91	LOS 91	AvSp 93	LOS 93
I-280	6th/Brannan	US 101	E	3.36	section closed		22.9	F *
	US 101	C & C Limit	SW	4.14	51.9	D	56.6	B
US 101	Bell/Laguna	I-80	S	1.32	18.8	F	13.4	F
	I-80	I-280	S	2.28	31.6	E	46.3	D
	I-280	C & C Limit	S	2.13	48.1	D	51.1	D
I-80	US 101	Fremont	N	2.13	19.0	F	25.9	F
	Fremont	Treasure I.	NE	2.13	29.3	F	37.7	E

* indicates that these segments were under construction during the travel time.

APPENDIX V

Current Land Use Impacts Analysis Guidelines

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GUIDELINES FOR ENVIRONMENTAL REVIEW: TRANSPORTATION IMPACTS

July 1991

City and County of San Francisco
Department of City Planning

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Introduction and Overview of Process

These guidelines have been prepared to aid consultants in preparing transportation analysis for environmental evaluation, both Environmental Impact Reports and Negative Declarations. In all cases that a transportation study is required for environmental analysis, a separate transportation report is to be prepared based on these guidelines, as background for the Negative Declaration or EIR.

The Department will make a determination whether a transportation study and report is necessary. Generally, a transportation report will be required if one or more of the following apply.

1) The project would potentially add at least 50 P.M. Peak Hour person trips;

2) The project would potentially increase existing traffic volumes on streets in its vicinity by at least 5 percent;

3) The project would potentially impact nearby intersections and/or arterials which are believed to presently operate at LOS "D" or worse;

4) The project would provide parking which would appear likely to be deficient, relative to anticipated project demand, by at least 20 percent;

5) The project has elements which have potential to adversely affect transit operations or the carrying capacity of nearby transit services;

6) The project has elements which have potential to adversely affect pedestrian safety or the adequacy of nearby pedestrian facilities;

7) The project would not fully satisfy truck loading demand on-site, when the anticipated number of deliveries and service calls exceed ten daily.

Department staff will use discretion in determining whether a transportation study is needed in special circumstances that may not fit the above criteria.

This set of guidelines updates and revises the September 1983 guidelines for downtown analyses and the April 1988 guidelines for neighborhood projects. It reflects the most current data for San Francisco travel characteristics, based on the assumptions used for the Mission Bay, South of Market and Van Ness Avenue EIRs, and other recent environmental analyses.

These guidelines supersede all previously published transportation analysis guidelines. It must be noted that these are only guidelines. It must not be assumed that the information provided herein constitutes a complete scope of work for any transportation analysis.

For clarification, the following represents an overview of the process involved in the preparation of a transportation analysis for environmental review purposes. No estimate or assumption is made or inferred regarding time lines for the various steps.

1) The project sponsor or a designated representative files an Environmental Review (ER) application with the Department. Once the application is considered complete by the Department a case number is assigned and a staff person from the Department's Office of Environmental Review (OER) is designated as the coordinator for environmental review. This individual will be different than the staff person handling any review necessary for other permit approval, but will coordinate with other Department staff.

2) A scoping meeting is held with the OER staff coordinator (other Department staff may also be involved), the project sponsor and the environmental consultant hired by or being considered by the project sponsor. The scoping meeting will determine the specific issues to be examined in the environmental review process.

3) If the Department determines that a transportation study is required, the consultant or its subconsultant will meet with the Transportation staff of the Department to determine the specific transportation issues to study and determine other parameters as defined in these guidelines. The consultant then prepares a draft transportation analysis scope of work for Departmental review, revision if necessary, and final approval. No work should be initiated by the transportation consultant until a written scope of work has been approved by the Department, including both the Transportation Section and the Office of Environmental Review (OER), by transmittal to the consultant of the form shown in Appendix B.

   The Department will make every reasonable effort to anticipate and include in the scope of work typical concerns of other City agencies. However it is not possible for the Department to anticipate in advance all issues and concerns which may later be raised by other Departments such as Muni or the Department

of Parking and Traffic. Ultimately the scope of work may need to be revised after approval such that it adequately addresses the issues raised by all City agencies. Any contractual arrangement between the project sponsor and its consultant preparing the transportation report should reflect flexibility to address other Departments' concerns as they are raised.

Department staff should be contacted to discuss the appropriate work scope only after the project applicant has filed an acceptable Environmental Evaluation with the Department.

4) The consultant will do special studies, such as transportation analysis, and may prepare an Initial Study, so that OER may determine whether the project will need a Negative Declaration or an EIR.

5) Based on the approved scope of work, the consultant (or its subconsultant) conducts the analysis required independent of the project sponsor, and submits drafts directly to the Department for review, comment and approval. It is recognized that more than one submittal of preliminary transportation findings will normally be necessary in order to achieve a satisfactory final transportation report. It is expected that the consultant will work closely with Department transportation and OER staff to ensure that all recommended modifications to preliminary draft submittals are accomplished in a timely fashion. It is expected that, under normal circumstances, up to three drafts of a transportation study may be required before the Department accepts it as final.

In the event that the consultant is unable to produce an acceptable final transportation report within three submittals, absent extenuating circumstances beyond the control of the consultant, the Department will take additional time and exercise greater scrutiny in its review of work submitted by that consultant for future projects, resulting in significant delays to the project sponsor.

6) Pertinent information from the final transportation report will be summarized for inclusion in an EIR or Negative Declaration. The specific information to be extracted and summarized, and the manner in which this information is to be presented in the EIR or Negative Declaration, will be determined on a case-by-case basis under the direction and guidance from the OER staff person assigned to the project.

The selection of the transportation consultant is at the discretion of the project sponsor, contingent upon submittal of an acceptable work scope to Department staff. The consultant's work effort is, however, to be entirely under the direction of the assigned Department staff. All submittals are to be made directly to the Department's Office of Environmental Review. Copies of the draft transportation report will be made available to the project sponsor

only in very unusual circumstances, and any comments by the sponsor must be directed to Department staff, not the transportation consultant. The consultant is expected to respond fully to direction by Department staff without interference from the project sponsor or its representatives.

The role of the project sponsor and its representatives during the preparation of the transportation report should be limited to provision of details concerning the project, response to recommended changes affecting project circulation, and indication of support or lack of support for recommended mitigation measures and other transportation improvements.

Transportation analysis is often a complex and lengthy process. The Department strongly advises that it begin as early as possible, to avoid unnecessary delays.

Analysis Guidelines

Each transportation report for any project is to follow a consistent format, as presented here, and include all of the elements and information presented in these guidelines.

1. Project Description

All analyses must include a detailed project description. This information is to be presented as the first section of the document.

The project description must include the following information:

- Case file number for the project, as assigned by the Department.
- Location of the project site - address, Assessor's Block and Lot number(s), cross streets.
- Lot area, and existing and proposed zoning.
- Existing and proposed total square footage for each land use type and the number of units for residential, hotel/motel, and live/work projects, including net changes in each type of use.
- Existing and proposed estimated number of employees and/or residents by type of use, including net changes (Refer to Appendix 3 for employment and residential densities by land use).
- Description and plans for existing and proposed use (if any) of public rights of way by present or proposed uses, either above or below grade (e.g. air rights, surface or subsurface revocable permits), including sidewalk width changes, changes in width or number of traffic lanes, function of lanes in terms of traffic channelization, and direction of travel.

- Detailed plans showing vehicular and pedestrian site access, including location and width of curb cuts for both existing and proposed uses, and proposed internal vehicular circulation, presented in standard architectural or engineering scale.

- Identification of all approval actions required by City departments, including use permits, variances, encroachment permits, changes in public rights-of-way.

2. *Project Setting*

The setting information shall be presented immediately following the Project Description, as a discrete chapter or report section. The goal is to provide a brief but complete description of existing transportation infrastructure and conditions in the vicinity of the project (generally a radius of two blocks or up to one quarter mile). Any quantitative information necessary to make comparisons between existing conditions and those resulting from project implementation and cumulative development should be limited to the project impacts discussions.

The specific perimeters of the study area, for both setting and project impacts analysis, are to be confirmed with Department staff within the context of approval for a scope of work.

The Setting section shall include the following text information:

- Street designations as provided in the Master Plan (Major or Secondary Thoroughfares, Transit Preferential Streets, Bicycle Routes, etc.) including description of number and width of lanes, direction of flow, presence of transit preferential lanes or peak period tow-away lanes affecting roadway travel capacity.

- Access to regional highways and freeways, including location of, distance from, and route to and from on-ramps and off-ramps.

- Description of public transit routes operating on streets within the study area, by operator function (local, express, crosstown, etc.), service areas, hours of service of each route, and type of vehicle (diesel coach, trolley bus, streetcar/subway, etc.). For projects subject to Code Section 321, the report must identify, by operator, all lines within 1/4, 1/3, and 1/2 mile radii of the site.

- Official (legislated, available from Department of Public Works, Maps and Surveys), actual and effective widths of sidewalks immediately adjacent to the project site.

- Characteristics of parking within the study area (typically within a two block radius of the site, but as determined in the approved scope of work), including number of on-street parking spaces, control of on-street parking (e.g. meters, signed for time limit, neighborhood residential permit parking, etc.), number of off-street parking facilities and spaces, and whether off-street parking is provided as independently-accessible stalls, or tandem/stacked valet operation. Any special circumstances affecting the availability of parking in the vicinity of the proposed project (e.g. periods of peaking in parking demand, institutional and other large sources of localized parking demand, or the area's relative degree of parking need as documented in the 1985 Neighborhood Parking Plan or other relevant studies) are to be noted.

The Setting section shall also provide graphics, including:

- Street maps of the study area showing: street names, number and direction of lanes; transit service by line number and with stop locations identified; and location and amount of parking facilities. For projects subject to Code Section 321, the transit map is to show 1/4, 1/3, and 1/2 mile radii lines.

3. *Travel Demand Analysis*

Net new travel demand generated by the project is to be estimated, based on the difference between existing and proposed land uses. Person trip generation rates per employee, unit of square footage for each land use, or other unit of measure as shown in Appendix 1, are to be used.

Each analysis should apply these trip generation rates individually to existing and proposed uses, and show the difference ("net new") by land use and in aggregate.

The Travel Demand Analysis is to include the following, unless otherwise directed in the work scope:

- Project trip generation (24-hour, P.M. Peak Period and P.M. Peak Hour) by land use for existing uses and the project; and

- Tables showing net new person trips distributed to various directions of travel, and assigned to the appropriate modes (auto, transit, walk and other). Modal assignment should also be calculated for daily, P.M. Peak Hour and P.M. Peak Period in all situations (show OUTBOUND ONLY for projects in C-3 District, SOMA and Mission Bay projects).

Note that the weekday P.M. Peak Period is generally 4:00-6:00, and counts will be conducted at least during this period. For projects in the greater downtown, the P.M. Peak hour is 4:30-5:30. For projects in other areas the traffic counts will show the actual peak hour for adjacent streets. The Department may also request counts for different times to reflect the peak period of trip generation by the land use if, based on informed knowledge of the project and its vicinity, it seems reasonable to assume that conditions during such time may be worse than during typical weekday P.M. Peak Hour or Peak Period.

Previous analyses have shown that work and nonwork travel have different geographic distributions and mode splits. Appendix 2 gives Work/Nonwork trip splits by land use. The trip distribution and modal splits shown in Appendix 3 are to be applied to work or non work travel components for the various land uses, by time period of analysis, in calculating the distribution and mode of total net project travel.

4. *Transportation Impacts Analysis*

Analysis for all projects is to be conducted for project-specific impacts, and for cumulative impacts.

A. Traffic Impacts

Traffic impacts text should begin with a concise discussion of the cumulative context. Year 2000(or other long-range horizon year) analysis is to assume a growth factor for "background" traffic,as specified in Appendix 4. Traffic generated by the project alone, and by all known projectsapproved or under formal review in the general vicinity of the project site, are to be expressed asa percentage of this overall growth factor. If the percentage seems to be so high as to represent an unreasonable share of the anticipated horizon year growth or exceed the overall growth factor,the consultant will need to discuss the issue with Department staff to determine the appropriate methodology.

Specific methodology guidelines are provided in Appendix 4. The specific intersections to be analyzed will be identified in the approved scope of work for the transportation analysis.

Intersection Level of Service analysis for P.M. Peak Hour (unless other periods are also specified in the work scope), including a table showing comparison for each identified intersection between existing, existing plus project, and a future horizon year (inclusion of project traffic is assumed, not additive for horizon year analysis).

B. Transit Impacts

In the case of downtown projects, year 2000 conditions for the Muni and regional transit screenlines for outbound travel, as expressed in the Mission Bay FEIR, are to be used to describe the cumulative context. Similar to traffic impacts analysis, the net new transit trips generated by the project should be cited, and also expressed as a percentage of cumulative growth by operator.

For projects outside of the C-3, SOMA and Mission Bay districts, assessment of P.M. Peak Hour and Peak Period conditions for transit operations should reflect travel patronage distributed among the various lines serving the vicinity of the project site, but not include a line-by-line analysis. The aggregation would be expressed as the averaged load factor for all lines serving the project vicinity (e.g. if the project is served by the 71, 7, 6, 33, and N-Judah lines, express the load factor as an average of all 5 lines). Neighborhood projects need not assume cumulative patronage growth for any future horizon year.

Load factors for the aggregated lines are to be cited for existing, existing plus project and, for downtown projects, the horizon year, during P.M. Peak Hour and Peak Period conditions. It should be noted whether the project is upstream or downstream from the Maximum Load Points (MLPs) for Muni lines serving the project.

The estimated number of trips which transfer between regional carriers and Muni lines serving the project should be included in the Muni assignment.

For downtown and vicinity projects, BART demand for West Bay and East Bay directions of travel should be shown separately.

C. *Parking Impacts*

Project parking demand is to be calculated for both long-term and short-term users for commercial projects, and for resident parking demand in projects which include housing.

In some situations (e.g. when overlapping work shifts of the project or adjacent uses cause an accumulation of parking demand greater than the daily average total), accumulated peak parking demand and its impact should also be quantified.

If a proposed project would displace existing parking, characteristics of such parking should be accounted for as follows:

(1) *the amount of parking reserved for the exclusive use by employees and visitors of uses currently on the site; and*

(2) *the amount of on-site parking which is considered required accessory parking to off-site land uses.*

(3) *the amount of parking available to the general public, characterized separately by long term (monthly or other leases) and short term (available at hourly or daily rates);*

Project parking demand (including, if appropriate, demand for parking displaced) should be compared to Planning Code requirements, and to the amount of parking to be provided.

Impacts of any deficiency in parking supply relative to estimated demand, including current users of public parking to be displaced by the project, should be quantified in terms of the estimated resultant increase in occupancy of available on street and off street facilities.

The amounts of bicycle and handicapped parking to be provided are to be cited and compared with Code requirements (including State and other as appropriate for handicapped parking) and estimated demand.

Identification of any parking access affecting a Transit Preferential Street, or any street identified in the Master Plan for full or partial priority for pedestrians, and any potential conflicts affecting transit, pedestrian or vehicular flow.

Any special circumstances affecting the availability of parking in the vicinity of the proposed project as identified in the Setting Section are to be taken into consideration in the analysis and noted.

D. *Pedestrian Impacts*

Pedestrian trips generated by the proposed project should be estimated for P.M. Peak Hour, midday, and/or the proposed project's peak period of trip generation.

Level of service conditions when appropriate for existing, existing plus project scenarios are to be calculated according to direction from Department OER and Transportation staff. Pushkarev and Zupan pedestrian Level of Service standards and methodology for Average Flow Characteristics Related to Flow in Platoons, or 1985 Highway Capacity Manual methodology (Chapter 13), is considered acceptable for the analysis; appropriate references are to be included.

In the downtown area, growth factors used for future traffic analysis are also to be used to determine growth in pedestrian travel.

Midblock pedestrian Level of Service analysis may, in some situations, be requested in addition to Level of Service analysis at pedestrian crossing (intersection) locations.

E. *Freight Loading and Service Impacts*

Off-street truck loading requirements should be specified according to the Planning Code.

Project truck loading demand and service rate for peak loading period and the entire day should be estimated, using the data shown in Appendix 7, and compared with Planning Code requirements and proposed on-site facilities.

The location, number and dimensions (including vertical clearance) of all spaces provided for freight and service functions, including van size spaces substituted for full size spaces, are to be specified. The location of freight elevators relative to all loading and service parking areas is to be shown, with clear identification of the circulation path between the loading/service stalls and elevators.

If demand exceeds supply for "average" conditions, especially if no off-street loading facilities are proposed to be included with the project, quantification of resulting impacts (e.g. time of day, number of instances and duration of double-parked vehicles) should be made, and details should be provided regarding how service needs would be accommodated.

If truck movements would require backing into or out of the site on public rights of way, the resultant delays to traffic, transit vehicles and pedestrians are to be characterized.

Identification of truck loading access affecting a Transit Preferential Street, or any street identified in the Master Plan for full or partial priority for pedestrians, and any potential conflicts affecting transit, pedestrian or vehicular flow.

In the case that a proposed project would rely on curbside yellow loading zones, an occupancy and turnover analysis is to be conducted for existing curbside loading spaces in the immediate vicinity of the project site, to estimate the probable availability of such spaces to serve the needs of the proposed project, primarily during the 10:00 A.M. to 3:00 P.M. weekday period but also inclusive of additional times as warranted for the specific use(s) proposed.

If applicable, the extent of taxi, tour bus, or other types of passenger loading and unloading needs should be specified including details regarding how these functions would be served. Where a porte cochere or other off-street passenger loading area is required or provided, include plans showing location, lanes, circulation, and all dimensions. Any plans to seek colored marked curbside areas from the Department of Parking and Traffic should be noted.

F. Construction Impacts

The number of daily and P.M. peak period construction truck trips, by construction phase, should be cited.

Closure or temporary use of pedestrian ways, parking lanes or traffic lanes is to be identified, indicating the extent and duration of such closure or temporary use. Impacts associated with such occupation of public rights of way should be quantified, in terms of parking lost, effects on transit operations and loading, or temporary degradation in levels of service for intersections and/or pedestrians.

In large projects, the staging of construction trucks for materials delivery should be cited, and parking needs of construction workers identified.

5. *Appropriate Transportation Mitigation Measures*

Transportation reports are frequently used not only for environmental evaluation but also in the conditional use and other permit processes. It is important to recognize the differences between these processes.

Mitigation measures required to deal with impacts determined to be environmentally significant according to CEQA standards should be clearly identified. When CEQA based mitigation is included as a condition of approval for a project, a monitoring program for each mitigation measure is also required and must be cited.

There are also cases in which no significant transportation impacts are identified and mitigation is not required. In these cases, there may be desirable measures to improve transportation conditions which may be recommended and subsequently included as conditions of project approval. Such measures are NOT to be termed as "mitigation."

Mitigation measures required under CEQA should be clearly distinguished from recommended transportation improvements which are not related to CEQA requirements.

Whenever either type of measure is identified, the following must be cited:

- If implementation would be the responsibility of the project sponsor, indicate whether the project sponsor supports or fails to support each specific recommendation.

- If implementation would be the responsibility of the City or another agency, the responsible department or agency should be identified and its position on each recommendation should be stated.

Typical transportation mitigation measures for downtown area projects, to address significant impacts as defined by CEQA standards, are shown in Appendix 6. While some of these may be appropriate for projects outside of the downtown area, mitigation measures for such projects would generally be a function of the specific conditions and impacts identified by the transportation study for each project.

6. *Appendices for Inclusion in Transportation Reports*

The following appendices are to be included with all transportation analyses:

- Complete sets of all traffic and pedestrian counts.
- Complete sets of all traffic and pedestrian Level of Service calculations.
- Complete sets of all analysis assumptions (including trip generation rates, transit patronage and capacities, parking turnover rates, mode splits, etc.).
- Intersection LOS definitions and descriptions.
- Transit LOS definitions and descriptions, including photographs of typical conditions representing each LOS.
- Pedestrian LOS definitions and descriptions, including photographs of typical conditions representing each LOS.
- Transportation Study Scope of Work Acknowledgement and Approval form, completed by the Department and showing approval, and a copy of the approved scope of work.

APPENDIX 1

Trip Generation Rates for Typical Land Uses

		Daily Person Trip Rate		P.M. Peak Percentage of Daily Trips	
Land Use	**Density[1]**	**Per Employee**	**Per Unit Land Use[2]**	**Peak Hour**	**Peak Period**
C-3 Primary Office					
Under 100,000 GSF	208	4.08	19.6	9.5	15.6
100,001-200,000	227	3.38	14.9	10.5	17.3
over 200,000 GSF	276	3.06	11.1	11.3	18.6
C-3 Secondary Office	276	5.0	18.1	6.6	11.5
Goverment Office	172	12.2	71.0	6.0	10.0
Back Office	210	3.4	16.2	12.5	20.5
Other Office	276	5.0	18.1	8.5	14.0
General Convenience					
Retail	350	52.5	150	4.0	8.0
Sales/Showrooms					
Composite Rate	721	22.0	30.5	6.6	12.0
Bulk Sales	719	33.6	46.7	6.6	12.0
Showrooms	830	5.0	6.0	6.6	12.0
Services					
Composite Rate	655	10.0	15.2	3.7	11.0
Service Delivery	1234	6.5	5.3	3.7	11.0
Service Repair	775	23.8	30.7	3.7	11.0
Service Institutional	248	7.1	28.6	3.7	11.0
Distribution	1234	12.6	10.2	3.2	6.5
Manufacturing	567	4.5	7.9	12.4	19.0
Eating/Drinking					
Composite Rate			600.0	13.5	27.0
Quality Sit Down			200.0	13.5	27.0
Fast-Food			1400.0	13.5	27.0
C-3 Hotel	908	15.8	17.4	3.2	7.0
Hotel/Motel	822	17.9	21.8	5.5	11.0
Athletic Clubs			57.0	10.5	
Billiards Parlors			2.6[3]		40.0
Daycare Centers			67.0	18.0	N/A
Residential					
Single Family/2+ Bdrm. Multi-Unit			10.0[4]	17.3	21.0
1 Bdrm./Studio			7.5[4]	17.3	21.0

NOTES:
(1)Gross Square Feet per employee
(2)Trips per 1,000 GSF unless otherwise specified
(3)Trips per billard table
(4)Trips per unit

Source:
Mission Bay FEIR
South of Market FEIR
Trip Generation, 5th Edition, ITE

APPENDIX 2

Percent Work/Non-Work Trip Split

	24-Hour	P.M. Peak Hour	P.M. Peak Period
	Work/Non-Work	Work/Non-Work	Work/Non-Work
C-3 Districts			
Primary/Back Office	36/64	83/17	83/17
Government Office	20/80	83/17	83/17
Hotel	12/88	60/40	64/36
Retail	4/96	4/96	4/96
Non C-3 Districts			
Primary Office	36/64	83/17	78/22
Back Office	53/47	83/17	78/22
Government Office	20/80	83/17	78/22
Convenience Retail	8/92	8/92	8/92
Hotel/Motel	10/90	45/55	29/71
Sales/Showrooms	8/92	33/67	23/77
Service	18/82	75/25	33/67
Distribution	14/86	75/25	75/25
Manufacturing	40/60	67/33	60/40
Industrial/Warehouse			
Automotive Parking	43/57	43/57	53/47
Residential	33/67	50/50	50/50

Source: Mission Bay FEIR, South of Market FEIR

For commercial/industrial uses, 100% of all work trips during P.M. peak, and 50% of all non-work trips during P.M. peak, are outbound.

For residential uses, all P.M. peak work trips and 33% of all P.M. peak non-work trips are inbound to the project; resident inbound/outbound trip directions may or may not correspond to peak outbound regional travel direction.

APPENDIX 3.1

C-3 Office Journey to Work Trips Based on P.M. Peak Period Residential Distribution and Mode Split

	Distribution	Mode Split	
NE San Francisco	10%	Drive Alone	6%
		Carpool	3
		MUNI	42
		BART	1
		Walk	47
		Other	1
NW San Francisco	17%	Drive Alone	23 %
		Carpool	11
		MUNI	64
		Other	2
SE San Francisco	8%	Drive Alone	28 %
		Carpool	11
		MUNI	33
		BART	19
		Other	9
SW San Francisco	17%	Drive Alone	18 %
		Carpool	14
		MUNI	62
		BART	6
		Other	1
North Bay	11%	Drive Alone	28 %
		Carpool	14
		Vanpool	1
		Charter/Club Bus	4
		GG Bus	41
		Ferry	12
East Bay	27%	Drive Alone*	6 %
		Carpool*	8
		Vanpool	6
		BART*	56
		AC*	22
		Charter/Club Bus	1
		Ferry	1
Peninsula	6%	Drive Alone	23 %
		Carpool	24
		Vanpool	1
		MUNI	2
		BART	25
		SamTrans	9
		CalTrain	15
		Other	1
Internal to C-3	4%	Drive Alone	2 %
		MUNI	40
		BART	1
		Walk	55
		Other	2

*P.M. Peak modal splits to the East Bay have been adjusted to account for return trips on BART, AC Transit and Drive Alone modes by those who participate in "casual carpools " for their morning commute. As a result, shares for these three modes are higher and carpool modal share is less in the evening than those reflected in previous guidelines which generally reflected morning commute mode. Adjustments were based on recent published research and recent commute surveys, as referenced below.

Source: South of Market FEIR, Department transportation model inputs for C-3 District
"Casual Carpooling in the San Francisco Bay Area"; Steve Beroldo, Transportation Quarterly, January 1990
"1990 Year End Report to the City Planning Commission"s TMA of San Francisco, December 1990.

APPENDIX 3.2

C-3 Non-Office Journey to Work Trips Based on P.M. Peak Period Residential Distribution and Mode Split

	Distribution	Mode Split	
NE San Francisco	11.4%	Drive Alone	5.2%
		Carpool	2.9
		MUNI	42.9
		BART	0.5
		Walk	46.9
		Other	1.6
NW San Francisco	20.3%	Drive Alone	23.1%
		Carpool	11.6
		MUNI	53.8
		BART	0.2
		Walk	0.7
		Other	0.6
SE San Francisco	13.2%	Drive Alone	27.6%
		Carpool	10.4
		Vanpool	1.6
		MUNI	32.9
		BART	19.0
		Walk	0.5
		Other	8.0
SW San Francisco	23.0%	Drive Alone	18.3%
		Carpool	10.8
		Vanpool	0.3
		MUNI	61.5
		BART	8.3
		Other	0.8
Peninsula	7.8%	Drive Alone	23.1%
		Carpool	24.59
		Vanpool	0.9
		MUNI	2.0
		BART	24.8
		SamTrans	8.5
		CalTrain	15.1
		Other	1.1
East Bay	11.6%	Drive Alone	5.9%
		Carpool	16.9
		Vanpool	6.7
		BART	47.8
		AC	22.0
		Charter	0.7
North Bay	2.7%	Drive Alone	27.8%
		Carpool	14.4
		Vanpool	2.3
		GG Bus	39.4
		Ferry	11.1
		Charter	4.8
		Other	0.2
Internal	10.0%	Drive Alone	2.1%
		Carpool	0.7
		MUNI	40.1
		BART	0.7
		Walk	54.5
		Other	1.9

Source: Mission Bay FEIR, Supporting Documentation Vol. VI, 1985 Screenline Forecasts

APPENDIX 3.3

C-3 Non-Work Trips Based on P.M. Peak Period Residential Distribution and Mode Split

	Distribution	Mode Split	
NE San Francisco	1.0%	Drive Alone	8.9%
		Carpool	8.5
		MUNI	13.1
		BART	0.3
		Walk	68.1
		Other	1.1
NW San Francisco	1.0%	Drive Alone	22.4%
		Carpool	30.0
		MUNI	34.1
		BART	0.2
		Walk	10.4
		Other	2.9
SE San Francisco	2.0%	Drive Alone	29.4%
		Carpool	30.0
		MUNI	21.2
		BART	15.3
		Walk	2.0
		Other	2.1
SW San Francisco	2.0%	Drive Alone	20.7%
		Carpool	32.2
		MUNI	40.4
		BART	5.0
		Other	1.7
Peninsula	3.0%	Drive Alone	45.5%
		Carpool	27.5
		MUNI	3.0
		BART	9.0
		SamTrans	5.0
		CalTrain	9.1
		Other	0.9
East Bay	6.0%	Drive Alone	44.0%
		Carpool	17.5
		BART	24.3
		AC	14.2
North Bay	2.0%	Drive Alone	54.0%
		Carpool	22.2
		GG Bus	20.0
		Ferry	3.8
Internal	83.0%	Drive Alone	8.9%
		Carpool	8.5
		MUNI	13.1
		BART	0.3
		Walk	68.1
		Other	1.1

Source: Mission Bay FEIR, Supporting Documentation Vol. VI, 1985 Screenline Forecasts

APPENDIX 3.4

SOMA/Mission Bay Office Journey-To-Work Trips
Based on P.M. Peak Period Residential Distribution and Mode Split

	Distribution	Mode Split	
NE San Francisco	6.5%	Drive Alone	22.0%
		Carpool	15.4
		MUNI	40.5
		Walk/Bike	21.2
NW San Francisco	5.3%	Drive Alone	26.5%
		Carpool	6.1
		MUNI	64.2
		Walk/Bike	3.2
SE San Francisco	16.4%	Drive Alone	37.3%
		Carpool	26.3
		MUNI	30.8
		BART	2.0
		Walk/Bike	2.3
		Other	1.3
SW San Francisco	16.9%	Drive Alone	22.8%
		Carpool	6.5
		MUNI	42.7
		BART	14.3
		Other	13.7
Peninsula	16.1%	Drive Alone	16.5%
		Carpool	19.8
		BART	11.6
		SamTrans	16.1
		CalTrain	30.2
		Charter Bus	5.8
East Bay	26.6%	Drive Alone	11.3%
		Carpool	31.8
		Vanpool	10.5
		BART	22.3
		AC	21.6
		Charter Bus	2.5
North Bay	10.1%	Drive Alone	13.5%
		Carpool	13.5
		GG Bus	52.1
		Ferry	11.0
		Charter Bus	9.9
Internal to SOMA and Mission Bay	2.1%	Drive Alone	22.9%
		Carpool	15.4
		MUNI	41.9
		Walk/Bike	19.8

Source: South of Market FEIR; extracted from Dept. model input tables for Subarea 2 within the SOMA study area, which represents the bulk of office space.

APPENDIX 3.5

SOMA and Mission Bay Non-OfficeJourney-to-Work Trips and Non-Work Trips Based on P.M. Peak Period Residential Distribution and Mode

	Distribution Work/Non-Work	Mode Split	Work/Non-Work
NE San Francisco	5.5% / 3.2%	Drive Alone	21.6% / 33.0%
		Carpool	7.9 / 35.0
		Vanpool	0.7 / –
		MUNI	44.9 / 11.0
		Walk	24.7 / 16.0
		Other	0.2 / –
		Bart	– / 2.0
		Bike	– / 3.0
NW San Francisco	4.5% / 8.4%	Drive Alone	40.9% / 34.0%
		Carpool	14.6 / 36.0
		Vanpool	0.3 / –
		MUNI	43.0 / 24.0
		Walk	– / –
		Bike	0.6 / 3.0
		Other	0.7 / 3.0
SE San Francisco	20.4% / 8.4%	Drive Alone	51.5% / 34.0%
		Carpool	7.4 / 36.0
		MUNI	33.1 / 24.0
		BART	3.8 / –
		Walk	0.7 / 3.0
		Bike	2.9 / 3.0
		Other	0.6 / –
SW San Francisco	15.0% / 8.4%	Drive Alone	45.3% / 34.0%
		Carpool	11.6 / 36.0
		MUNI	32.4 / 24.0
		BART	6.3 / –
		Walk	0.5 / 3.0
		Other	3.0 / –
Peninsula	18.1% / 3.2%	Drive Alone	60.1% / 48.0%
		Carpool	11.1 / 52.0
		Vanpool	0.2 /
		MUNI	0.2 /
		BART	9.4 /
		SamTrans	5.0 /
		CalTrain	12.8 /
		Charter	1.1 /
		Other	0.2 /
East Bay	21.9% / 1.1%	Drive Alone	29.0% / 48.0%
		Carpool	19.5 / 52.0
		Vanpool	4.0 /
		BART	34.3 /
		AC	11.2 /
		Charter	2.0 /
North Bay	11.0% / 5.3%	Drive Alone	31.9% / 48.0%
		Carpool	35.9 / 52.0
		Vanpool	0.2 /
		GG Bus	24.8 /
		Ferry	5.5 /
		Charter	1.7 /
Internal to SOMA and Mission Bay	3.2% / 61.0%	Drive Alone	19.2% / 33.0%
		Carpool	6.2 / 35.0
		Vanpool	0.4
		MUNI	43.8 / 11.0
		BART	2.0
		Walk	30.1 / 68.0
		Other	0.3 / 0.3(bike)

Source: South of Market FEIR, background documents for Department model inputs

APPENDIX 3.6

Van Ness Avenue Commercial Journey To Work Trips
Based onP.M. Peak Period Trip Distribution and Mode Split

	Distribution	Mode Split	
NE San Francisco	12.3%	Drive Alone	4.9%
		Carpool	7.9
		MUNI	43.4
		Walk	42.2
		Other	1.6
NW San Francisco	16.6%	Drive Alone	2.3%
		Carpool	14.8
		MUNI	61.0
		Walk	2.0
		Other	1.9
SE San Francisco	17.0%	Drive Alone	20.6%
		Carpool	17.5
		MUNI	48.0
		BART	11.8
		Walk	0.4
		Other	1.7
SW San Francisco	7.3%	Drive Alone	24.5%
		Carpool	16.4
		MUNI	53.8
		BART	3.9
		Other	1.4
Peninsula	18.3%	Drive Alone	41.5%
		Carpool	28.6
		MUNI	2.4
		BART	16.6
		SamTrans	8.1
		CalTrain	2.8
East Bay	13.0%	Drive Alone	23.3%
		Carpool	12.0
		Vanpool	4.1
		BART	52.4
		AC	8.2
North Bay	3.3%	Drive Alone	19.3%
		Carpool	24.8
		Vanpool	4.3
		GG Bus	45.6
		Ferry	4.0
		Charter/Club Bus	2.0
Internal to Van Ness Corridor	0.2%	Drive Alone	12.45%
		Carpool	0.7
		MUNI	27.3
		Walk	58.8
		Other	0.8

Source: Van Ness Avenue FEIR, Appendix I

APPENDIX 3.7

Van Ness Avenue Commercial Non-Work Trips
Based onP.M. Peak Period Trip Distribution and Mode Split

	Distribution	Mode Split	
NE San Francisco	13.0%	Drive Alone	37.4%
		Carpool	19.8
		MUNI	26.4
		Walk	14.0
		Other	2.4
NW San Francisco	26.7%	Drive Alone	45.8%
		Carpool	11.1
		MUNI	30.8
		Walk	10.0
		Other	2.3
SE San Francisco	18.1%	Drive Alone	50.9%
		Carpool	18.4
		MUNI	21.0
		BART	4.2
		Walk	3.6
		Other	1.9
SW San Francisco	4.2%	Drive Alone	47.5%
		Carpool	10.9
		MUNI	36.4
		BART	3.5
		Other	1.7
Peninsula	10.5%	Drive Alone	58.8%
		Carpool	28.5
		MUNI	0.2
		BART	7.0
		SamTrans	3.0
		Other	2.5
East Bay	14.7%	Drive Alone	43.9%
		Carpool	7.5
		BART	44.0
		AC	4.6
North Bay	5.8%	Drive Alone	43.4%
		Carpool	11.9
		GG Bus	40.0
		Ferry	4.7
Internal to Van Ness Corridor	7.0%	Drive Alone	13.8%
		Carpool	5.5
		MUNI	10.1
		Walk	69.3
		Other	0.3

Source: Van Ness Avenue FEIR, Appendix I

APPENDIX 3.B

Van Ness Avenue Resident Trips
Based on P.M. Peak Period Distribution[1] and Mode Split

	Distribution	Mode Split	
	Work/Non-Work		Work/Non-Work
NE San Francisco	59.1% / 12.7%	Drive Alone	14.9% / 20.5%
		Carpool	11.1 / 29.2
		MUNI	53.8 / 37.9
		Walk	18.4 / 8.8
		Other	1.8 / 3.2
NW San Francisco	17.4% / 8.2%	Drive Alone	37.7% / 18.1%
		Carpool	11.8 / 23.6
		MUNI	31.3 / 44.8
		Walk	16.7 / 10.4
		Other	2.5 / 3.1
SE San Francisco	9.2% / 6.6%	Drive Alone	45.2% / 17.7%
		Carpool	9.6 / 12.5
		MUNI	40.6 / 60.0
		Walk	2.4 / 1.8
		Other	2.2 / 8.0
SW San Francisco	2.7% / 5.4%	Drive Alone	86.7% / 10.4%
		Carpool	4.9 / 11.6
		MUNI	25.7 / 73.0
		BART	0 / 5.0
		Other	2.7 / 0
Peninsula	5.0% / 5.9%	Drive Alone	65.0% / 35.6%
		Carpool	15.5 / 17.3
		MUNI	1.8 / 0
		BART	10.0 / 40.1
		SamTrans	6.0 / 7.0
		Other	1.7 / 0
East Bay	5.3% / 1.6%	Drive Alone	70.0% / 35.1%
		Carpool	9.0 / 22.1
		BART	18.0 / 42.0
		AC	1.0 / 0.8
		Charter/Club Bus	2.0 / 0
North Bay	1.5% / 1.1%	Drive Alone	71.0% / 12.4%
		Carpool	17.5 / 87.6
		GG Bus	6.0 / 0
		Charter/Club Bus	5.5 / 0
Internal to Van Ness Corridor	6% / 67.5%	Drive Alone	0 / 4.4%
		Carpool	0 / 8.7
		MUNI	0 / 26.0
		Walk	0 / 58.8
		Other	0 / 2.1

Source: Van Ness Avenue FEIR, Appendix I

[1]Note that for work trips, geographic distribution represents trip origin location; all work trip destinations are within the Van Ness Avenue Corridor.

APPENDIX 3.9

Trip Distribution and Modal Split for Chinatown

Chinatown		Work Trips			Non-Work Trips	
	Distribution		Mode Split		Distribution	Mode Split
SF	NE	33%	Drive Alone	7%	26%	7%
			*Shared Ride	6%		10%
			Muni	14%		37%
			Walk	75%		36%
	NW	19%	Drive Alone	37%	15%	16%
			Shared Ride	7%		28%
			Muni	56%		56%
	SE	7%	Drive Alone	37%	5%	16%
			Shared Ride	7%		28%
			Muni	48%		55%
			Bart/Other Transit	8%		3%
	SW	25%	Drive Alone	37%	15%	16%
			Shared Ride	7%		28%
			Muni	49%		55%
			Bart/Other Transit	7%		3%
Peninsula		9%	Drive Alone	52%	17%	38%
			Shared Ride	16%		57%
			Bart/Other Transit	32%		5%
E. Bay		6%	Drive Alone	32%	6%	38%
			Shared Ride	23%		55%
			Bart/Other Transit	45%		7%
N. Bay		1%	Drive Alone	52%	4%	38%
			Shared Ride	16%		60%
			Bart/Other Transit	32%		2%

Source Transportation Impact Analysis for Chinatown Rezoning, Jan 87, DCP

*Shared Ride Vehicle Occupancy Assumed at 2.7 persons per vehicle

APPENDIX 3.10

Commercial Trip Modal Splits for Districts Surveyed In the Neighborhood Commercial Rezoning Study

Modal distribution of person trips for projects in the Geary Street, Polk Street and Broadway NCD's only shall be shown among auto, transit, pedestrian, and other modes based on the following survey results from NCRS EIR, Appendix B.

	Geary Blvd.	Polk St.	Broadway
Drive	23%	24%	44%
MUNI	39%	11%	13%
Walk	26%	62%	33%
Other	2%	3%	11%
Average Auto Occupancy	2.1%	2.0%	2.6%

In all other NCD's or neighborhoods, mode splits shall be based on surveys of existing similar uses in the vicinity of the proposed project, or other means, as directed by Department staff through the work scope.

APPENDIX 4.1

INTERSECTION LEVEL OF SERVICE ANALYSIS METHODOLOGY

Level of Service analysis for existing conditions are to be based on traffic counts taken by the Department of Parking and Traffic not more than three years old, data in certified EIRs or background transportation studies supporting certified Negative Declarations for which the counts data is no more than three years old, and/or turning movement counts to be made by the consultant at each affected intersection. Copies of all counts used in the analysis, and level of service calculations, are to be included with the report as an appendix.

Level of Service analysis for existing conditions plus the project is to be based on an assignment of net new project vehicular trips compared to existing conditions for each of the affected streets and intersections in the study area.

Level of Service must also be estimated and shown for future conditions, with a horizon year approximately 10 years in the future. The future horizon year should be expressed as 2000, 2005, 2010, 2015, etc.; five year increments in the expression of the future year should be used. Analysis of future conditions will use a growth factor for travel in the general geographic area of the project site. This growth factor will generally assume that net new travel attributable to the project is included, such that it will not normally be necessary to add project travel to the growth rate.

Growth factors for three sectors of the downtown and vicinity, reflecting trip growth from 1985 through 2000, are shown in Appendix 4.3. The overall 15-year factor should be converted to an annualized factor, and the annual factor used to determine the growth rate for the portion of the 1985 - 2000 15-year period. (e.g. 1991 - 2000 growth factor would be 9 X annualized factor).

For other areas, analysis should incorporate impacts based on all identified area development that is reasonably foreseeable, growth identified and analyzed in relevant planning reports and accompanying environmental analyses (e.g. NCRS, Rincon Hill and Van Ness Avenue EIRs), and growth in through background travel (estimated by DPT Bureau of Traffic Engineering at one percent per year).

For projects located within neighborhoods for which a specific development framework has been elaborated in previous environmental analyses, the cumulative transportation analysis for the project shall encompass the time period which corresponds to the appropriate areawide study analysis. Where no such analysis has been completed, a 10-year time frame should be assumed for cumulative analysis. Identification of specific area projects and relevant growth rates for through background travel shall be verified with Department OER and Transportation staff prior to the initiation of the analysis.

Standard methodologies to calculate intersection Level of Service are to be employed as follows:

Signalized intersections - TRB Circular 212 Planning Methodology

In some situations it may be necessary to adjust the capacity of the intersection to account for localized constraints. Thiswould be done by conducting a saturation flow analysis where, based on informed knowledge of the study area it may be determined that standard values of the Circular 212 will require adjustment. The scope of work will note that an adjusted intersection capacity will be determined by the traffic consultant on the basis of the saturation flow analysis prior to submission of the first draft report. In other cases, it may become apparent after initial staff review of the calculations that a saturation flow analysis is warranted to determine effective intersection capacity.

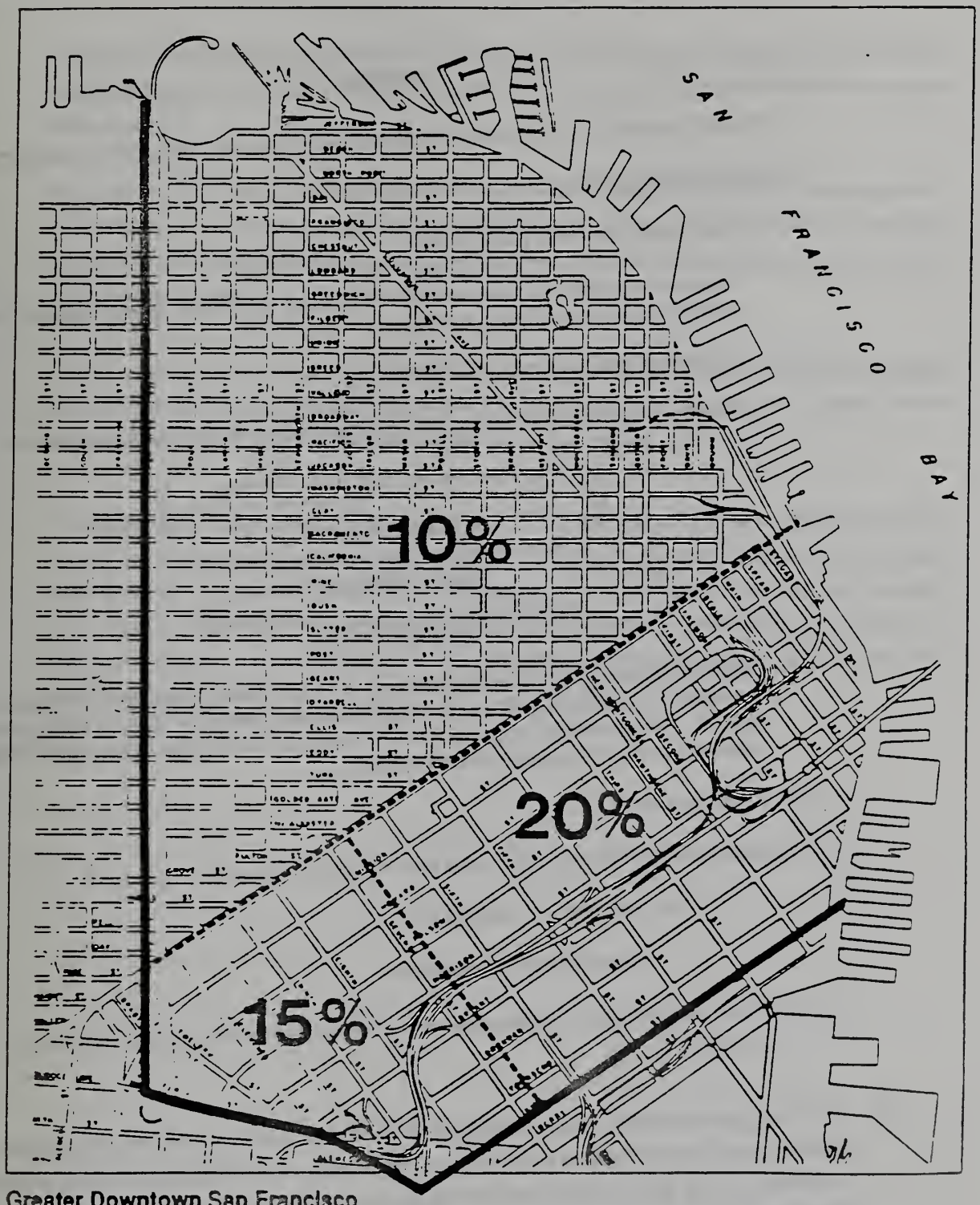
Unsignalized intersections (all-way stop sign control) - TRB Circular 373

Note: Circular 373 is to be used only for methodology described therein for unsignalized all-way stop intersections; methodologies for other types of intersections shall be as specified in these Departmental guidelines.

T intersections with single stop control, and intersections with 2-way stop sign control

1985 Highway Capacity Manual Unsignalized Method (Chapter 10).

APPENDIX 4.2



Greater Downtown San Francisco
1985 - 2000 Traffic Growth Rates

S. F. Department of City Planning 5/90

Source: Derived from Mission Bay and South of Market EIR's.

APPENDIX 5.1

PARKING DEMAND CALCULATIONS FOR NON-DOWNTOWN AND RESIDENTIAL PROJECTS

1. Commercial Parking Demand

   A. Commercial Long-Term Parking Demand

   In general this is equivalent to the total number of journey-to-work vehicle trip ends generated by the project (both drive-alone and rideshare), divided by 2.

   B. Commercial Short-Term Parking Demand

   Projects outside of the C-3 Districts, SOMA and Mission Bay are to use the following equation.

$$\left[\frac{\left(\frac{\text{Total project non-work auto person trip ends}}{\text{1.2 persons per vehicle}} \right)}{\text{2 one-way auto trips}} \right]$$

$$\text{Parking turnover rate}$$

   The turnover rate may vary for individual projects and is to be based on surveys of parking turnover for established uses comparable to those of the proposed project, preferably within the same general area. However, a turnover rate of greater than 5 per day should not be used unless supported by independent surveys reviewed and accepted by Department staff.

2. Resident Parking Demand

   New residential projects should generally use the following ratios to estimate parking demand.

   1.1 vehicles/studio or 1-bedroom apt.

   1.5 vehicles/multiple bedroom unit

   (Source. Recht Hausrath Assoc. 1986 downtown resident survey, Residential Conservation Rezoning Study, DCP, 1990)

Note: The foregoing resident parking demand ratios are highly generalized, averaged rates derived from surveys of a variety of housing types and locations in San Francisco. The transportation consultant would normally be expected to use these average ratios. However, there may be circumstances, such as the type, expected occupancy, or location of the housing, which justify the use of different ratios. In situations that the Department, in the course of

establishing the transportation work scope, concurs that such circumstances exist, the consultant will be authorized to conduct independent surveys of resident auto ownership for similar types of projects to establish and support different ratios.

The Department will use these surveys and its own surveys carried out subsequent to publication of these guidelines to refine and develop more specific rates for a variety of housing types. When such revised standards are developed they shall be made available to the consultant at the time a work scope for a project proposal is outlined pending amendment of this document.

In certain circumstances it may be necessary to determine both estimated parking demand for the proposed project and existing residential units on the project site and/or on the general project vicinity. Estimation of parking demand for the proposed project must use one of the methods previously described.

To estimate parking demand of existing residential uses, 1980 U.S. Census data (1990 when it becomes available) may be used in neighborhood situations, for the tract in which the proposed project is located plus abutting tracts of similar residential character. If 1980 data is used, the average auto ownership rate as shown for these tracts should be multiplied by a factor of 1.14, to reflect increasing auto registration in San Francisco since 1980 and the observed tendency for occupants of newly constructed dwelling units to have greater auto occupancy rates than those of older units.

APPENDIX 5.2

PARKING DEMAND CALCULATIONS FOR C-3, SOMA and MISSION BAY PROJECTS*

1. PROJECT PARKING DEMAND

1A. *Project long term*

Project office GSF / 20,000	project rideshare demand
+	plus
Project office GSF x 0.11 drive alone / 275 GSF/employee	
+	
demand Project retail GSF x 0.15 drive alone / 350 GSF/employee	project drive alone
=	equals
	PROJECT LONG TERM PARKING DEMAND

1B. Project short term

Project office GSF		Project retail GSF	
20,000	+	1,000	*PROJECT SHORT TERM PARKING DEMAND*

(1A) + (1B) = TOTAL PROJECT PARKING DEMAND

* Derived from September 1983 transportation guidelines, and May 4, 1989 memo, Dean L. Macris to City Planning Commission

2. NET ADDITIONAL PARKING DEMAND

[Total Project Parking Demand]	sum of quotients from 1A and 1B above
-	minus
[Parking Demand of Existing Uses]	apply equations 1A and 1B to existing office and retail uses on the site
=	equals
	NET ADDITIONAL PARKING DEMAND

Note. These calculations as applied to the project should be readily available, either in a footnote or an appendix.

APPENDIX 5.3

STANDARD LANGUAGE TO BE USED FOR THE PARKING SECTION OF TRANSPORTATION IMPACTS CHAPTER OF OFFICE AND MIXED USE COMMERCIAL PROJECTS IN C-3, SOMA AND MISSION BAY

Parking

Parking demand was projected for the proposed ____ Street project on the basis of the estimated vehicular traffic generated by the project. The project would create long term parking demand for about *(see equation 1A)* spaces (including *(see equation 1A)* carpool/vanpool spaces), and short term parking demand for *(see equation 1B)* equivalent daily spaces, for a total parking demand of *(sum of 1A plus 1B)* daily spaces. Discounting for parking demand generated by existing uses on the site, the net additional parking demand generated by the proposed project would be about *(see equation 2)* spaces. The proposed project would provide about _____ gross square feet of parking area which the Department of City Planning estimates could accommodate about _____ vehicles with tandem valet operations.[FN1]

Existing parking facilities on the site currently include a total of ____ parking spaces.[FN2] A total of _____ existing parking spaces are private, and reserved for the exclusive use of employees currently working in existing uses on the site. Of the _____ existing parking spaces made available to the general public, _____ leases are currently valid and % of the public parking is, therefore, considered long term. ___% of the public parking (____ spaces) are available for short term use.

The proposed project would eliminate __ existing parking spaces available to the general public,[FN2] resulting in a total unmet demand of about _____ equivalent daily spaces (total project demand + displaced public parking - proposed parking capacity = _____ spaces total unmet demand). Occupancy in off-street public parking lots and garages within a 1/4 mile radius of the project's site may be expected to increase from the existing __% to __ % as a result of the unmet parking demand generated by the project.

[NOTE: FOR PROJECTS IN C-3 DISTRICTS USE THE FOLLOWING PARAGRAPH. SEE BELOW FOR LANGUAGE FOR PROJECTS IN SOMA AND MISSION BAY.]

The proposed project is in the C - 3 District, in which parking is not required for commercial uses. The City Planning Code allows accessory parking up to seven percent of the gross floor area of the project. The _____ gross square feet of parking proposed by the project sponsor [would be within] [would exceed] this seven percent allowance (__ total project GSF x 0.07 = __ GSF allowed for accessory parking).* The proposed project would allocate at least __ spaces for public short term parking, and at least __ spaces for carpools and vanpools. Parking provided in the proposed project for public use would be subject to a rate structure (City Planning Code Section 155(g)) which encourages short term use and discourages all day parking.

[NOTE: FOR PROJECTS IN SOMA AND MISSION BAY USE THE FOLLOWING PARAGRAPH AS A SUBSTITUTE FOR THE PARAGRAPH ABOVE.]

The proposed project is in the ___ District, in which parking is required for commercial uses. The City Planning Code requires accessory parking in the amount of _ spaces per _ floor area of *(type of use)* for the project, and allows up to 150% of this requirement as accessory parking. The project would be required to provide at least ____ parking spaces; ____ parking spaces are proposed by the project sponsor. The proposed project would allocate at least ___** spaces for public short term parking, and at least _____** spaces for carpools and vanpools. Parking provided in the proposed project for public use would be subject to a rate structure (City Planning Code Section 155(g)) which encourages short term use and discourages all day parking.

FN1 Using the Department's standard of about 215 gross square feet per vehicle for tandem valet parking in downtown San Francisco, per May 4, 1989 memorandum, Dean L. Macris to City Planning Commission.

FN2 This reflects the actual vehicular capacity of the existing garage(s) and/or lot(s) [indicate which] at any point in time, as currently operated [cite whether self-park, tandem, or both], and not the total number of vehicles or individuals who may use the facility. For long term parking, it is recognized that leasing operations often "oversubscribe" parking facilities, selling more leases than the number of vehicles the facility can accommodate at one time, to take care of non-daily users who still wish a long term lease, and those who are in-and-out during the course of the day. As a result, a greater number of parking leases or users may be displaced than the actual vehicular capacity of the facility.

* If the amount of GSF is above the seven percent accessory allowance, an explaination of how the excess is to be used and applied must be included in this paragraph. If Conditional Use approval is being sought for the additional amount, so state. If replacement short term parking is requested, this language should be modified to note that such replacement parking may be exempt from FAR calculations, and that the Project Sponsor is requesting such an exemption.

** Using the ratios cited in the May 4, 1989 memo for minimum parking allocations to short term and rideshare users, plus replacement parking if applicable.

APPENDIX 6

TYPICAL TRANSPORTATION MITIGATION MEASURES FOR THE DOWNTOWN AREA

In the downtown area, a number of transportation related items are required by law which would serve to mitigate impacts, and are summarized here for informational purposes. They should also be referred to in the Mitigation Section of the EIR, not as mitigation measures specific to the project but rather, as generic mitigation measures applicable in the downtown area.

These measures include: contribution of funds for increased transit service per the Transit Impact Development Fee, Board of Supervisors Ordinance #224-81; when auto parking is provided, provision of off-street bicycle storage pursuant to Section 155 of the City Planning Code; provision of transportation brokerage services to coordinate a transportation management program and participation in a network of transportation brokers pursuant to Section 163 of the City Planning Code; priority use of off-street parking in the project for the physically handicapped, travellers in carpools and vanpools, and short-term trips by business visitors and clients, pursuant to Section 155 of the City Planning Code; and provision of building directories and signs for service elevators in loading areas, pursuant to Section 155 of the City Planning Code. Additional generic measures apply which are not related to mitigation of transportation impacts.

Additional measures which are not required by legislation but which would also serve to mitigate transportation impacts and are generally included in transportation analyses as a policy matter include the following.

Measures that could be implemented by the project sponsor as part of the project

- The placement of paving, landscaping or structures in the sidewalk area (subject to City approval) would be done in such a way as to mininmize interference with pedestrian traffic.

- Secure bicycle facilities would be provided for project commuters and short-term visitors which would, at a minimum, provide safe shelter for the number of spaces required in the project.

- While subsurface sidewalk vaults are discouraged, the project sponsor would design subsurface sidewalk vaults to allow for possible future widening of adjacent streets. Vault design shall be of sufficient strength to carry maximum vehicular live and dynamic loads. Design of the vault area to accommodate street trees would also be made, subject to Department of Public Works approval. In addition, should vaults exist or be installed as part of the project, the project sponsor would accommodate and pay for the installation of all subsurface footings, supports and foundations as may be required for future public improvements such as street lights, trolley wire poles, signs, benches, transit shelters, etc. within project vault areas. Placement

of such improvements is entirely within the discretion of the City. Should the City at any future time determine its need for any subsidewalk space occupied by the project, for any reason, the project sponsor agrees to waive all rights of appeal of revocation of permits to occupy such space.

- During the construction period, the project sponsor would cause to limit construction truck movement to the hours between 9:00 A.M. and 3:30 P.M., and to prohibit staging or unloading of equipment and materials during the periods of 7:30 A.M. to 9:00 A.M. and 3:30 P.M. to 6:00 P.M., to minimize peak period traffic conflicts and to accommodate queueing of Muni buses prior to the peak hours of service. The project sponsor and construction contractor would meet with the Traffic Engineering Division of the Department of Parking and Traffic, the Fire Department, Muni, and the Department of City Planning to determine feasible traffic management and mitigation measures to reduce traffic congestion during construction of this project and other nearby projects. To minimize cumulative traffic impacts due to lane closures during construction, the project sponsor would coordinate with construction contractors for any concurrent nearby projects that are planned for construction or which later become known.

- The project sponsor would, in cooperation with the Municipal Railway, install eyebolts or make provision for the direct attachment of eyebolts for Muni trolley wires on the proposed building wherever necessary or agree to waive all rights to refuse the attachment of eyebolts to the proposed building if such attachment is done at City expense.

- The parking driveway would include warning devices (lighted signs and noise-emitting devices) to alert pedestrians to vehicles exiting the structure.

Measures that could be implemented by pubilc agencies

- Coordinate work schedules of Pacific Gas and Electric Company and other utilities requiring trenching, so that street disruption would take place during weekends and off-peak hours. This should be done through the San Francisco Committee for Utility Liaison on Construction and Other Projects (CULCOP). In-street utilities should be installed at the same time as the street is opened for construction of the project to minimize street disruption.

- The City could act upon or endorse the implementation of transportation mitigations described in the Mission Bay EIR Vol. II, Section VI.E, Mitigation, pp. VI.E.214- VI.E.217 for the year 2000 and VI.E.224-VI.E.231 for the year 2020, and in the South of Market EIR, pp. 189-194. The measures for the year 2000 include: constructing and maintaining rail rapid transit lines from downtown San Francisco to suburban corridors and major non-downtown centers in San Francisco; increased funding for Vehicle-Acquisition Plans

for San Francisco and regional transit agencies to expand existing non-rail transit service; providing exclusive transit lanes on City streets and on freeways; reducing incentives to drive by discouraging long-term parking; encouraging carpools, vanpools and bicycle use; improving pedestrian circulation within downtown San Francisco; and providing transportation brokerage services. The Mission Bay EIR describes various types of measures to illustrate the magnitude of improvements needed to mitigate the impacts of regional growth in 2020.

Some of the implementing actions would require approval by decision-makers outside the City and County of San Francisco; many of the measures would require action by City agencies other than the City Planning Commission, such as the San Francisco Public Utilities Commission and/or Board of Supervisors. All except such things as providing transportation brokers would require funding from or approval by MTC. These measures are system-wide measures that must be implemented by public agencies. Other than project-specific measures such as the relevant transportation mitigation measures described above as part of the project or such measures as the Transit Impact Development Fee assessment by San Francisco Ordinance 224-81 which would contribute directly to implementation of these system-wide measures, it is not appropriate to impose mitigation at system-wide levels on individual projects.

APPENDIX 7

Freight Delivery and Service Vehicle Demand

Peak Hour* Generation

$$\text{Number of Spaces per 1,000 GSF} = \frac{\frac{(R) \times 1.25}{9}}{2.4}$$

Average Hour Generation

$$\text{Number of Spaces per 1,000 GSF} = (R) : 9 : 2.4$$

$$\text{Daily Truck Trip Generation Per Use} = \frac{GSF}{1,000} \times (R)$$

Where:

R	=	Daily truck trip generation per 1,000 GSF of use from Table 7.1
1.25	=	Peak Hour deliveries at 25% higher rate than other hours
9	=	Number of hours deliveries are made (8:00A.M.-5:00P.M.)
2.4	=	Assuming average truck delivery/pickup of 25 minutes, 2.4 trucks could be accommodated per hour

*NOTE Peak Hour Truck Trip Generation generally occurs between 10:00A.M. and 1:00P.M., and is unrelated to P.M. Peak Hour used in other transportation analyses.

Table 7.1 Daily Truck Trip Generation Rate per 1,000 Square Feet of Floor Area, by Land Use

Office	.21
Bank	.30
Retail (Composite)	
Wholesale	.22
Apparel	.80
Department Store	.45
Furniture	.24
Restaurant/Bar	3.60
Drug Store	3.70
Specialty Shops	.18
Services	
Hotel	.09
Institution	.10
Business	1.80
Parking	.03
Administration	.40
Warehousing	.46
Manufacturing	.51
Light Industry	.65
Residential	.03

Source: Center City Pedestrian Circulation and Goods Movement Study (Wilbur Smith & Assoc. for San Francisco Department of City Planning). September, 1980

TABLE 7.2 **Percent Daily Truck Activity by Vehicle Type**

Cars and Pickups	25%
Vans	42%
Small Delivery Trucks[1] 2 axles	9%
Large Delivery Trucks[2] 2 axles	19%
Large Delivery Trucks[3] 3 axles	4%
Tractor - Trailer 4 axles	1%

[1] Characterized as a small courier, U.S. Mail truck or step van

[2] Characterized as a mid-size Hertz rental truck, beverage truck or small furniture truck

[3] Characterized as a garbage truck

Source: DKS Associates, 1990

City and County of San Francisco
Department of City Planning

450 McAllister Street
San Francisco, CA 94102

TRANSPORTATION STUDY SCOPE OF WORK

ACKNOWLEDGEMENT AND APPROVAL

Transmittal To: _____ **Date:** _____

_____

_____

_____

The proposed scope of work for the _____ project,
Case No. _____, dated _____ is hereby

- ☐ Approved as submitted
- ☐ Approved as revised and resubmitted
- ☐ Approved subject to comments below
- ☐ Not approved, pending modifications specified below and resubmitted

Signed: _____ _____

Transportation Section *Office of Environmental Review*

Comments: _____

_____

_____

_____

_____

_____

Note: A copy of this approval and the final scope of work is to be appended to the transportation study. The Department advises consultants and project sponsors that review of the draft transportation report may identify issues or concerns of other City agencies not addressed in the scope of work hereby approved, and that the scope of work may need to be modified to accommodate such additional issues.

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Center City Pedestrian Circulation and Goods Movement Study, Wilbur Smith Associates for the S.F. Department of City Planning, September 1980

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APPENDIX 9

YEAR 2000 P.M. PEAK HOUR AND P.M. PEAK PERIOD MODAL SHARES FOR OUTBOUND TRAVEL* FROM DOWNTOWN AND VICINITY

	P.M. PEAK HOUR	P.M. PEAK PERIOD
Drive Alone	20%	21%
Rideshare	10%	11%
Muni	24%	23%
BART	24%	23%
AC Transit	7%	7%
SamTrans	1%	1%
CalTrain	2%	2%
Golden Gate Bus	4%	4%
Golden Gate Ferry	1%	1%
Other	7%	7%

* represents both work and nonwork travel, outbound only.

Source: Mission Bay FEIR, Table VI.E.7,
300 Street Howard FEIR (89.589E), background transportation documents

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APPENDIX VI

Downtown Transit Impact Development Fee Ordinance

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AS AMENDED IN BD. 5/4/84

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FILE NO. 224-84-1 ORDINANCE NO. 224-84

(TIDF)

AMENDING CHAPTER 38 OF THE SAN FRANCISCO ADMINISTRATIVE CODE BY AMENDING SECTIONS 38.1, 38.2, 38.5 AND 38.8 THEREOF AND BY ADDING SECTION 38.8.5 THERETO RELATING TO THE PRINCIPLES TO BE USED IN CALCULATING THE AMOUNT OF THE TRANSIT IMPACT DEVELOPMENT FEE AND PROVIDING FOR ADJUSTMENT TO THE TRANSIT IMPACT DEVELOPMENT FEE IN CASES OF CONVERSION FROM OTHER USES TO OFFICE USE TO INCORPORATE THE TRIP GENERATION RATE OF PRIOR USE SO AS TO ACCURATELY MEASURE THE INCREMENTAL IMPACT OF THE CONVERSION TO OFFICE USE ON THE SAN FRANCISCO MUNICIPAL RAILWAY.

NOTE: Additions or substitutions are underlined; deletions are indicated by ((double parenthases)).

Be it ordained by the people of the City and County of San Francisco:

Section 1. Sections 38.1, 38.2 and 38.5 of Chapter 38, the San Francisco Administrative Code, are hereby amended to read as follows:

Section 38.1. Definitions.

For the purposes of this chapter, the following definitions shall apply:

(a) BOARD. The Board of Supervisors of the City and County of San Francisco.

(b) CERTIFICATE OF FINAL COMPLETION AND OCCUPANCY shall mean a certificate of final completion and occupancy issued by the Superintendent, Bureau of Building Inspection, pursuant to the Building Code.

(c) CITY. The City and County of San Francisco.

(d) DOWNTOWN AREA. That portion of the City and County bounded by Van Ness Avenue as far north as Broadway, from Van Ness Avenue and Broadway easterly on Broadway to Sansome Street; then northerly on Sansome Street to the Embarcadero; then southeasterly on the Embarcadero to Berry Street; then southwesterly on Berry Street to De Haro Street; then southerly on De Haro Street to Alameda Street; then westerly on Alameda Street to Bryant Street; then northerly on Bryant Street to Thirteenth Street; then westerly on Thirteenth Street to South Van Ness Avenue; then northerly to Van Ness Avenue. The downtown area includes all property with an address on any of or within the area surrounded by the above enumerated boundary streets.

(e) GROSS SQUARE FOOT OF OFFICE USE. A square foot of floor space within a structure, whether or not within a room, to be occupied by, or primarily serving, office use.

(f) NEW DEVELOPMENT. Any new construction, addition, extension, conversion, or enlargement of an existing structure which includes any gross square feet of office use.

(g) OFFICE USE. Any structure or portion thereof intended for occupancy by business entities which will primarily provide clerical, professional or business services of the business entity, or which will primarily provide clerical, professional or business services to other business entities or to the public, at that location.

(h) PEAK PERIOD. The total number of minutes in an average working day, determined in accordance with Section 38.5(a), during which ((the passanger demand on)) the Municipal Railway ((system would require it to deploy)) deploys all its operable equipment so that the system experiences no excess vehicular capacity.

(i) PUBLIC TRANSIT SERVICE. Services of the Municipal Railway of the City and County of San Francisco.

/ / /

Section 38.2. Findings.

All office uses in the downtown area are benefitted by virtue of the availability of the Municipal Railway as a means of transit for employees and customers.

The demand for public transit service from downtown area office uses imposes a unique burden on the Municipal Railway, qualitatively different than the burden imposed by other uses of property in San Francisco. The need for that level of service provided by the Municipal Railway during peak periods can be attributed in substantial part to office uses of property in the downtown area.

New developments will bring increased need for public transit service in the downtown area during peak periods. The Municipal Railway will be burdened with the demands of transporting a larger number of passengers. Future increases in demand for public transit service are therefore attributable directly to new development in the downtown area increasing the number of persons using the Municipal Railway during peak periods.

This increased demand must be met not only by the acquisition of new rolling stock and the addition of new services, but also by the employment of additional personnel and fuel to operate the added facilities, and the maintenance, repair and replacement of the additional facilities as they wear out or become obsolete.

That level of additional cost incurred by the City in expanding and operating, maintaining, repairing and replacing its public transit facilities to accommodate the additional peak-period person-trips generated by office use in new developments can be translated into a cost per gross square foot of office use in the new developments. The cost of expanding

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current services and adding new services is directly proportional to the amount of peak-period Municipal Railway travel generated by new development. Development of office uses causes more additional Municipal Railway peak-period person-trips, per square foot, than the development of any other use of property in the downtown area. It is desirable to impose the increased burden of serving such use, through a fee approximating the cost per square foot, directly upon the developer of new development generating the need.

Even though other uses such as retail use also generate Municipal Railway peak-period person trips (and even if a particular alternate use were to generate more such trips than do office uses), the Board refrains from imposing the Transit Impact Development Fee on such uses at this time, and in that regard finds: (1) The vast majority of new commercial space in the downtown area will be devoted to office uses, and the primary cause for new peak-period Municipal Railway passengers will be the development of new office uses; and (2) a significant proportion of the new retail and service uses which will hereafter be developed in the downtown area will be constructed in connection with new office developments and, for that reason, limitation of the Fee to office uses both ameliorates the economic impact of the Fee on developers of office space and encourages the development of projects with mixed uses consisting of office, retail and service uses.

Sec. 38.3. Transit Impact Development Fee Schedule.

This Transit Impact Development Fee Schedule is set at an actuarially sound level to insure that the proceeds from the Transit Impact Development Fee from each new development is sufficient, including such earnings as may be derived from

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investment of all proceeds and amortization thereof, to pay for all capital and operating costs incurred in providing and operating additional required peak-period public transit service capacity, over the life of such new development; without, however, exceeding five dollars ($5.00) per square foot.

The following principles have been and, in the future, shall be observed in calculating the amount of the Fee:

(a) The times during the day which constitute the peak period shall be determined functionally as that period of time during which a decision to add additional scheduled vehicle runs would require Muni to purchase or lease additional vehicles because the existing available fleet is fully committed in the sense that vehicles are actually in revenue service, being held for deployment later in the peak period, in reserve, or scheduled for repair or preventive maintenance.

(b) State, federal and private operating and capital subsidies for the cost of providing additional peak period service shall be assumed only when and to the extent that receipt of such subsidies is reasonably probable.

(c) The calculation of future costs of providing service for additional passengers during the peak periods should assume no increase in the level of crowding for the system as a whole or material decreases in the frequency of service.

(d) The cost of electricity shall be calculated based on the price which the City could receive for such power were it sold to PG&E assigned customers rather than the cost at which it is furnished to the Municipal Railway by the Hetch Hetchy Water and Power Department.

(e) Costs and revenue attributable to trips taken outside the peak periods by office workers and visitors shall not be included.

(f) In calculating the revenue from additional peak period trips, a weighted average fare (reflecting the frequency of trips paid for by cash fares as opposed to fast passes) shall be estimated. In making this calculation, the average fare for a fast pass trip shall be determined by dividing the cost of a fast pass by an estimate of the total number of trips per month (whether or not taken in the peak period) which will be taken by a fast pass purchaser. In projecting future revenues, peak period revenue shall be assumed to increase at the same rate as peak period operating costs.

(g) Where feasible, actual information for the fiscal year for which the fee is being calculated should be used. Where estimates must be made, those estimates should be based on such information as the General Manager of the Public Utilities Commission or his delegate considers reasonable for the purpose. Possible changes in the operation or productivity of the Municipal Railway shall be taken into account only if such changes are the announced policy of the Municipal Railway or the Public Utilities Commission and the impact of such change on peak period costs or revenues can be estimated with reasonable certainty.

The Transit Impact Fee Schedule shall be as follows:

FOR EACH GROSS SQUARE FOOT OF OFFICE USE IN NEW DEVELOPMENT IN THE DOWNTOWN AREA. $5.00*
*Formula fee rate calculated ((at $9.18)) to be in excess of $5.00; limited to $5.00.

/ / /

Section 2. Section 38.8 of Chapter 38 of the San Francisco Administrative Code is hereby amended to read as follows:

Section 38.8. Setting of Fee.

Each developer, prior to obtaining a building permit for any new development in the downtown area after the effective date of this ordinance, shall file with the General Manager of the Public Utilities Commission, on such form as he may develop, a report indicating the number of gross square feet of the new development intended for office use. Each developer of a new development for which a building permit was issued prior to the effective date of this ordinance and for which a final certificate of occupancy had not been issued prior to the effective date of this ordinance shall file the same report prior to obtaining a final certificate of occupancy. The General Manager shall determine the number of gross square feet of office use to which the Transit Impact Development Fee Schedule applies, ((crediting the number of gross square feet of office use being eliminated as part of the project and)) disregarding the number of gross square feet of office use being retained, determine the useful life category if the Fee Schedule includes useful life categories, apply the fee schedule, and determine the fee which reflects the additional cost of peak-period public transit service generated by the office use in the new development. The applicant shall be notified of the General Manager's determination in writing. The General Manager shall mail a copy of his determination to the applicant. The applicant may appeal the determination of the number of gross square feet of office use subject to the fee, the adjustment factor described in Section 38.8.5(b), or the useful-life category if the fee schedule includes useful life categories, to the Public Utilities

Commission in order to reduce the amount of the fee obligation. If the applicant notifies the General Manager of his acceptance of the determination, or does not appeal to the Public Utilities Commission within 15 days of the date of personal service or mailing of notice of the General Manager's determination, the General Manager's determination shall be final, and a notice of such determination shall be provided the Central Permit Bureau. The Central Permit Bureau may not issue a building permit for any new development in the downtown area until it has received notice from the General Manager of the Public Utilities Commission or the Public Utilities Commission of the final determination of the amount of the Transit Impact Development Fee to be paid.

Section 3. Chapter 38 of the San Francisco Administrative Code is hereby amended by adding Section 38.8.5 thereto, reading as follows:

Section 38.8.5. Credits for Prior Use.

In determining the number of gross square feet of office use to which the Transit Impact Development Fee Schedule applies, the General Manager shall provide for the following credits:

a. For prior office uses, there shall be a credit for the number of gross square feet of office use being eliminated as part of the project.

b. For prior uses other than office use, there shall be a credit for the number of gross square feet of non-office use being eliminated multiplied by an adjustment factor to reflect the difference between office building peak period municipal railway trip generation rates and peak period municipal railway trip generation rates for other uses. The adjustment factor shall be determined by the General Manager as follows:

(1) The adjustment factor shall be a fraction, the

denominator of [illegible] shall be the peak period municipal railway trip generation rate which the General Manager shall determine, in consultation with the Department of City Planning applied to the class of prior use being eliminated by the project.

(2) The denominator of the fraction shall be the peak period municipal railway trip generation rate for office use used in the most recent calculation of the Transit Impact Development Fee Schedule approved by the Board of Supervisors.

(3) Notwithstanding the foregoing, the adjustment factor shall not exceed 1.

Section 4. The Board finds and declares that the principles to be employed in calculating the amount of the fee as set forth in Section 1 above are wholly consistent with the Board's intention in enacting the Transit Impact Development Fee Ordinance, with the cost analysis presented to the Board by Bruce Bernhard at the time the ordinance was enacted (which, after correction of certain errors, estimated the loss per square foot to be $6.57, which estimate the Board accepts as reasonable), with the Transit Impact Development Fee Cost Studies for fiscal years 1980-81 and 1981-82 approved by the Board by Resolution 880-83, and with the revised Transit Impact Development Fee Cost Study prepared by Touche Ross & Co. dated February 22, 1984 making certain revisions to the estimation of the FY 1980-81 net present value of the loss which would be incurred in providing additional peak-period transit service (resulting in a net reduction of said loss from $8.60 to $8.36 per square foot). The Board hereby approves the assumptions, methodology and conclusions stated in said revised Transit Impact Development Fee Cost Study. The Board accordingly finds that as of the date the Ordinance was enacted, and at all times thereafter, the net

present value of the loss which would be incurred in providing additional peak period transit service was in excess of $5.00 per square foot.

Section 5. The Board of Supervisors intends that the portion of the amendment to Chapter 38 adding Section 38.8.5 be given full retroactive effect so that the credits allowed by Section 38.8.5 shall be afforded to all developers who have paid the fee or will hereafter be required to do so.

Section 6. The amendments to Chapter 38 set forth in Sections 2 and 3 of this ordinance shall not be effective unless and until, prior to June 25, 1984, the City Attorney has advised the Clerk of the Board that either (1) the Superior Court for the County of San Francisco has entered an order approving a partial settlement of Russ Building Partnership, et al. v. City and County of San Francisco, No. 780-795, providing that no claims for costs, attorney's fees or expenses may be sought by the class action plaintiff therein on account of the adoption of Section 2 and 3 of this ordinance; or, alternatively, (2) that the Superior Court has determined that no such court order approving such partial settlement is required by law.

APPROVED AS TO FORM:

[signature]

Deputy City Attorney

0125D

Passed for Second Reading
Board of Supervisors, San Francisco

MAY 7 1984

Ayes: Supervisors Britt, Hongisto, Kennedy, Kopp, Maher, Molinari, ~~Nelder~~ Renne, Silver, ~~Walker~~ Ward.

Noes: Supervisors NELDER

Absent: Supervisors WALKER

John L. Taylor ..... Clerk

199841
File No.

5/15/84
Approved

Read Second Time and Finally Passed
Board of Supervisors, San Francisco

MAY 14 1984

Ayes: Supervisors Britt, Hongisto, Kennedy, Kopp, ~~Maher~~ Molinari, ~~Nelder~~ Renne, Silver, ~~Walker~~ Ward

Noes: Supervisors NELDER

Absent: Supervisors MAHER RENNE WALKER WARD

I hereby certify that the foregoing ordinance was finally passed by the Board of Supervisors of the City and County of San Francisco.

John L. Taylor ..... Clerk

Dianne Feinstein
Mayor

APPENDIX VII

San Francisco Trip Reduction Efforts: Relationship to Regional Transportation Control Measures

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San Francisco Trip Reduction Efforts: Relationship to Regional Transportation Control Measures

TCM and Discussion	Local Implementation
1. Expand employer assistance Programs	The current San Francisco transportation management and brokerage program was expanded by the addition of one staff person to the Department of City Planning. The new staff member is responsible for conducting surveys, expanding outreach, and developing and implementing educational activities related to trip reduction. Funds for the position were allocated from the half cent sales tax administered by the Authority.
2. Adopt employer-based trip reduction ordinance. Required for compliance with Rule 1 of Regulation 13, issued by the Air Quality Management District (BAAQMD) in December 1992.	San Francisco has adopted ordinances for transportation management and transportation brokerage programs which apply to the downtown area and Mission Bay. Voluntary programs are in place for certain institutional uses in other areas of the city. Existing regulations include highly effective parking restrictions. A total of $600,000 in local sales tax funds is budgeted for TMA brokerage and trip reduction programs for FY 93/94. For further details on compliance with Rule 1, see Chapter 6.
4. Expand new rail starts program. Tied to implementation of the current rail agreement (MTC's Resolution 1876) which calls for a $3.5 billion program comprising five rail extension projects.	No San Francisco project is included in this list; however, the City has programmed and partially funded several rail extension projects which could become a part of this TCM. These include construction of the F-Line Streetcar in the median of the realigned Embarcadero Roadway, extension of light rail service from the Muni Metro Turnback to 16th Street, and extension of trolley bus lines to Mission Bay and Potrero Hill areas. These and other transit projects are included in the Capital Improvement Program. (See Chapter 8).
5. Improve access to rail and ferries. Expand local transit service to regional facilities.	Installation of an Automatic Train Control System will permit more frequent light rail service to the Ferry Building. The MUNI Metro extension to Mission Bay will provide direct light rail service to the Caltrain depot.

San Francisco Transportation Control Measures (contd.)

6. **Improve inter-city rail service.** Focus of this measure is the establishment of Sacramento-Oakland-San Jose rail service.	While no long-distance service expansion is planned for San Francisco, the City is donating right-of-way for the Peninsula Commute Service and participating in funding for the Joint Powers Board.
7. **Improve ferry service.** Purpose is expansion of ferry service as funding allows. MTC is preparing a long term ferry service plan and will allocate funds under its control consistent with the final recommendations of this plan.	The Port Authority of San Francisco has received funding for expansion of ferry docking facilities at Pier 1/2. Additional ferry terminal expansion projects were included in the 1991 CMP. (See Chapter 8).
8. **Construct carpool and express bus lanes on freeways.** The region, in cooperation with Caltrans, has adopted a 2005 HOV master plan which includes 480 lane-miles of HOV lanes compared to the 80 lane-miles at present.	Freeway HOV lanes currently exist on the approaches to the Bay Bridge and Golden Gate Bridge. The first phase of the 2005 HOV Master Plan calls for the creation of an HOV lane on I-280 east of US 101.
9. **Improve bicycle access.** This TCM proposes an increase in the number of bike routes and expansion of the carrying capacity of buses, ferries and rail transit.	Department of Parking and Traffic has developed a 5-year, 26.7 mile commuter bikeway program based on a prioritized list of projects developed by a Bicycle Advisory Committee, in existence since 1991. The department has secured funds from Proposition 116. The Authority has programmed funds from the Surface Transportation Program for this purpose. (See Chapter 8).
10. **Youth transportation.** Support programs to reduce youth transit fares, encourage school carpools and purchase clean fuel school buses.	MUNI offers youth fares and youth monthly passes, and conducts public education campaigns in the schools.
11. **Install freeway traffic operations system.** Purpose is to improve flows on freeways by increasing average travel speeds and eliminating major tie ups more quickly.	Implementation of this TCM is being coordinated by CalTrans. The Authority has programmed funds for TOS projects on US 101 and I-280. (See Chapter 8)

San Francisco Transportation Control Measures (contd.)	
12. Improve arterial traffic management. MTC will support existing and expanded signal timing programs and encourage transit signal preemption.	Department of Parking and Traffic has undertaken a long-term project to replace aging signal controllers and install signals with transit preemption capabilities on transit preferential streets. The Authority has prioritized STP/CMAQ funds for signal timing and signal preemption projects by MUNI and the Department of Parking and Traffic. (See Chapter 8).
13. Reduce transit fares.	Implementation of this TCM requires additional funds from regional, state, or federal sources.
14. Vanpool liability insurance.	Implementation of this TCM is taking place at the regional level.
15. Provide carpool incentives.	The City's TMA activities include both required and voluntary programs for certain employers in the downtown core. These programs include carpool incentives.
16. Adopt indirect source control program. BAAQMD is proposing to subject new and existing development projects with regionally significant air quality impacts to a new indirect source rule, covering commercial and residential projects, other vehicle attractors such as convention and sports facilities, universities, hospitals, and airports, and possibly new highways and road improvements with potential to generate additional traffic. Implementation in two phases: first, new development; and second, existing development. Projected implementation: January 1994.	San Francisco has no specific indirect source rule for air quality, however, the land use and parking regulations along with the Transit Development Impact Fee, constitute development regulations for the mitigation of new travel demand.
17. Conduct public education. Focus is to promote awareness of alternative transportation modes, including walking or bicycling to transit.	San Francisco is responding to this measure within the scope discussed earlier in this Chapter for transportation management initiatives.

San Francisco Transportation Control Measures (contd.)	
18. High density zones at transit stations. Measure recommends that land uses at new transit stations be mixed use and higher density.	All proposed new service in San Francisco is located in areas that are zoned medium to high density mixed land use. The City is not proposing any additional densification at existing or proposed transit stations.
19. General plan air quality element. This measure recommends inclusion of a local air quality element in the adopted general plan where consistency would be required between the Air Quality Element and the Circulation/Land Use, Housing and other appropriate elements.	The Environmental Protection Element of the San Francisco General Plan includes Air Quality objectives and policies pertaining to transportation. This section of the General Plan will be amended within the next two years in response to federal and state mandates.
20. Conduct demonstration projects. BAAQMD and MTC will promote projects and seek private sponsors and federal support.	The Authority has programmed $513,000 in AB 434 funds (FY 1993-4) toward alternative fuel projects. (See Chapter 8).
21. Develop legislative package for Phase 2 revenue measures. Funding will be requested for several transit initiatives, most importantly, expanded levels of basic transit and inter-city service, expanded rail access and fare reduction programs.	MTC has the lead on these initiatives. San Francisco has passed resolutions in support of pending legislation for bridge tolls and vehicle registration fees for increased transit and CMP funding.
22. Implement market-based measures. A Phase 3 TCM. Full implementation cannot occur until authorizing legislation is passed.	San Francisco currently taxes all paid parking 25%, and the city planning code mandates a rate structure for garages which discourages long-term parking downtown.
23. Establish signal timing programs in cities that do not currently have such programs.	Local sales tax funds are currently being used to fund a replacement program for signal controllers. new controllers will be capable of multiple phase programming and are necessary for implementation of the transit signal preemption program.
24. For cities which currently have programs, secure funds to maintain traffic flow benefits.	See above.

APPENDIX VIII

Glossary of CMP Related Terms

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GLOSSARY OF CMP RELATED TERMS

Association of Bay Area Governments - (ABAG)	The regional agency that is responsible for regional planning other than for transportation. ABAG publishes forecasts of projected growth for the region.
Air Quality Attainment Plan	The plan for attainment of state air quality standards, as required by the California Clean Air Act of 1988. It is adopted by air quality districts and subject to approval by the State Air Resources Board.
Average Daily Traffic (ADT)	The average number of vehicles passing a specified point during a 24 hour period.
Bay Area Air Quality Management District - (BAAQMD)	The regional agency which adopts and enforces regulations to achieve and maintain state and federal air quality standards in the nine county Bay Area.
California State Department of Transportation (Caltrans)	Responsible, as the Department owner/operator of the state highway system for its safe proposed operation and maintenance. Proposes projects for Intercity Rail, Interregional Roads, and sound walls in the PSTIP. Also responsible for the HSOPP, Toll Bridge, and Aeronautics programs. The TSM and State/Local Partnership Programs are administered by Caltrans. Caltrans is the implementing agency for most state highway projects, regardless of program, and for the Intercity Rail Program.

Capital Improvement Program (CIP)	As used in this document: A seven year program of projects to maintain or improve the traffic level of service and transit performance standards developed by the CMP.
Capital Priorites	A process used by MTC to evaluate and prioritize transit projects in the region. All sources of transit funding, including UMTA grants, state programs, and other sources are considered. This process involves all of the transit operators in the region, including bus, rail, and ferries.
Congestion Management Agency (CMA)	The agency responsible for developing the Congestion Management Program and coordinating and monitoring its implementation.
Congestion Management Program (CMP)	A Legislatively required county-wide program which addresses congestion problems.
Flexible Congestion Relief (FCR)	One of the state funding programs for local or regional transportation projects that will reduce congestion. State highway projects, local roads, and rail guideway projects are all eligible for FCR funds.
Highway System Operation Protection Plan - (HSOPP)	A program created by state and legislation that includes projects related to state highway safety and rehabilitation, seismic safety, and traffic operational improvements. HSOPP is a four year program of projects adopted separately from the STIP.

Level of Service - (LOS)	A qualitative measure describing operational conditions within a traffic stream; generally described in terms of such factors as speed and travel time. Expressed in range of A through F, with F being the worst.
Model	A mathematical description of a real-life situation that uses data on past and present conditions to make a projection about the future.
Model - Land Use	A model used to predict the future spatial allocation of urban activities (land use), given total regional growth, the future transportation system, and other factors.
Model - Traffic	A mathematical equation or graphic technique used to simulate and predicts traffic movements, particularly those in urban areas or on a freeway.
Peak - (Peak Period, Rush Hours)	1. The period during which the maximum amount of travel occurs. It may be specified as the morning (a.m.) or afternoon or evening (p.m.) peak. 2. The period when demand for transportation service is the heaviest.

Principal Arterial	A functional classification system which defines a street or roadway in terms of the nature and composition of travel. Principal arterials derive their importance from service to rural oriented traffic, but equally or even more importantly, from service for major movements within the urbanized area. The principal arterial system carries the major portion of trips entering and leaving the urban area, as well as the majority of through movements desiring to bypass the central city. The US Department of Transportation provides the guidance that 40-65% of the VMT should be accounted for on the principal arterial system.
Proposed State Transportation Improvement Program - (PSTIP)	This seven year program is based on the adopted STIP and the most recent Project Delivery Report. It is developed by Caltrans for CTC approval and includes projects developed through the IRRS, Intercity Rail, Sound Wall, Toll Bridge, and Aeronautics programs.
Proposition 116	Passed by the voters in June of 1990, this initiative sponsored by the Planning and Conservation League provides $1.9B in rail bonds, primarily to projects specified in the legislation.

Regional Transportation Improvement Program - (RTIP)	A list of proposed transportation projects submitted to the CTC by the regional transportation planning agency, as a request for state funding through the FCR and Urban and Commuter Rail Programs. The individual projects are first proposed by local jurisdictions (CMAs in urbanized counties), then evaluated and prioritized by the MTC for submission to the CTC. The RTIP has a seven year planning horizon, and is updated every two years.
Regional Transportation Plan - (RTP)	A comprehensive 20 year plan for the region, updated every two years by the regional transportation planning agency. The RTP includes goals, objectives, and policies, and recommends specific transportation improvements.
Regional Transportation Planning Agency - (RTPA)	The agency responsible for the preparation of RTPs and RTIPs and designated by the State Business Transportation and Housing Agency to allocate transit funds. RTPAs can be local transportation commissions, council of governments, metropolitan planning organizations, or statutorily created agencies. MTC is the RTPA for the nine county Bay Area.
Short Range Transit Plan (SRTP)	A five year comprehensive plan required by UMTA for all transit operators receiving federal funds. The plans establish the operator's goals, policies, objectives; analyzes current and past performance, and describes short term operational and capital improvement plans.

State Implemention Plan - (SIP)	State plan required by the Federal Clean Air Act of 1990 to attain and maintain national ambient air quality standards. It is adopted by local air quality districts and the State Air Resources Board.
Transportation Control Measure - (TCM)	A measure intended to reduce pollutant emissions from motor vehicles. Examples of TCMs include programs to encourage ridesharing or public transit usage, city or county trip reduction ordinances, and the use of cleaner burning fuels in motor vehicles.
Transportation Demand Management - (TDM)	Demand based techniques for reducing traffic congestion, such as ridesharing programs and flexible work schedules enabling employees to commute to and from work outside of peak hours.
Transportation System Management - (TSM)	That part of the urban transportation planning process undertaken to improve the efficiency of the existing transportation system. The intent is to make better use of the existing transportation improvements that generally cost less and can be implemented more quickly than major capital improvements.
U/C Rail - Urban and Commuter Rail	A state funding program financed by the sales of bonds authorized by Proposition 108. Two additional bond measures to fund this program will be placed in front of the voters in 1992 and 1994. All projects must be matched 50% by local funds. Projects are proposed through the CMP process to regional agencies, which then may include them in their RTIPs.

Urbanized Area	As defined by the Bureau of the Census, a population concentration of at least 50,000 inhabitants, generally consisting of a central city and the surrounding, closely settled, contiguous territory (suburbs). The boundary is based primarily on a population density of 1000 people/mile but also includes some less densely settled areas, as well as such areas as industrial parks and railroad yards, if they are within areas of dense urban development. The boundaries of urbanized areas, the specific criteria used to determine urbanized areas, or both may change in subsequent censuses.
Vehicle Miles of Travel - (VMT)	1. On highways, a measurement of the total miles traveled in all vehicles in the area for a specified time period. It is calculated by the number of vehicles multipled by the miles traveled in a given area or on a given highway during the time period. 2. In transit, the number of vehicle miles operated on a given route or line or network during a specified time period.
Vehicle Occupancy	The number of people aboard a vehicle at a given time; also known as auto or automobile occupancy when the reference is to automobile travel only.
Vehicle Trip	A one-way movement of a vehicle between two points.

Transportation Level of Service Definitions,

Level of Service	Description	Volume/Capacity V/C Ratio
A	Level of Service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.	0 - 0.60
B	Level of Service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can be generally described as very good.	0.61 - 0.70
C	Level of Service C describes a condition where the approach to an intersection if often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.	0.71 - 0.80
D	Level of Service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operations can generally be described as fair.	0.81 - 0.90
E	Capacity occurs at Level of Service E. It represents the most number of vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting up-stream of the intersection and vehicles may be delayed up to several signal cycles.	0.91 - 1.00
F	Level of Service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.	1.01+

Source: Highway Research Board, Highway Capacity Manual, 1965 and Environmental Science Associates, Inc.